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ABSTRACT

This manual, which is part of a series of training and information materials for managers and trainers of health staff in developing countries, is designed to assist individuals responsible for designing national health learning materials. The introduction explains the manual's purpose, organization, and use and discusses the importance of instructional design. Each of the manual's 12 chapters presents one design strategy and includes a learning objective, health-related examples taken from various sources to illustrate different ways of using the design strategy being discussed, summary boxes highlighting the chapter's main points, and practice activities. The individual chapters are organized into five sections as follows: learning (how people learn); focusing the learner's attention (learning objectives, advance organizers, margin call-outs, and visual signals); organizing the learning (verbal signals, summaries, and examples); integrating the learning (practice activities, feedback, and inserted questions); and putting it all together (using design strategies). A glossary and brief list of suggested readings are included. (MN)

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Design Strategies for Educational Materials is part of a series of training and information materials for managers and trainers of health staff in developing countries. The series is primarily aimed at managers of national health learning materials (HLM) projects in the networks of countries collaborating with WHO's Interregional Health Learning Materials Programme.

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To ensure relevance and appropriateness, teaching and learning materials for health personnel must be designed to meet the needs of the specific target group

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Letter to the Reader

One of the main problems in training health care staff in developing countries is the real shortage or sometimes even total absence of *suitable* educational materials. The Health Learning Materials (HLM) Programme at WHO headquarters in Geneva was set up to solve the problem. Staff of the Programme are working closely with managers of national HLM projects and health trainers to address this shortcoming.

Most training texts typically available have been designed and developed in Europe or the United States. These texts commonly refer to health conditions, systems and equipment which are not a part of the developing country context. Aside from being culturally irrelevant, the language used in many of these texts is at a level which is too difficult and technical to be really useful. They are not specifically designed for local health care needs and do not take into account the health conditions and practices of the developing country. Therefore, to ensure relevance, health care educators must adapt, modify, and/or develop new educational materials.

However, in addressing this problem, few national HLM managers or health care trainers have had formal training in how to develop instructional materials that will meet their local needs. How does one design *effective* educational materials? This manual begins to answer this question by focussing attention on strategies for designing educational materials. It outlines basic educational design strategies, gives health related examples and provides the opportunity to practise such skills. This manual is part of a series of guidelines on the design and development of educational materials issued by the HLM Programme in Geneva.

We suggest you begin by first turning to the next page and reading the first section entitled, "What is the Manual All About?" This will explain to you what you can expect from the manual and will help you to use it better.

World Health Organization
Development of Human Resources for Health
Health Learning Materials Programme
July, 1991

M. A. C. Dowling
Roberta Ritson

To design more effective instructional materials, look at what needs to be taught and then consider the characteristics of the learners, the setting they will learn in, and so on

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What is the Manual All About?

Assumptions the manual makes about you

This manual is about instructional design strategies that can make your educational materials more effective. It is assumed that you are in a position of training health care workers. Educational materials may be scarce and/or culturally irrelevant; therefore, you must adapt or modify existing materials or design and develop new materials. You may be a manager in a national ministry of health, trainer of health personnel, or an editor of training and information materials. Though an expert in some area of health care, this will be your first formal introduction to basic instructional design strategies. Also, the focus is more on written text since often media aids, like overhead projector transparencies, slides, and video are more expensive and may be unavailable to you.

It is assumed that you have already determined that:

1) there is a need for instructional design in which area you may lack knowledge and skills, and
2) such instructional design will help to upgrade the quality and "usability" of educational materials produced.

You will have looked at the instructional problem and considered such things as the qualities of the learners, the setting they will learn in, and what they need to know and do. In essence, you have already determined *"what"* to design. Now you must consider *"how to"* design it. The manual focusses on how to design better educational materials.

We begin by first explaining what the manual is all about. This is to help you become clear about its purpose, organization, and importance to you. This will allow you to use the manual better and determine its appropriateness for others.

What is the purpose of the manual?

How to design better educational materials

The general aim of the manual is to help you improve your effectiveness in designing educational materials for the health sector. Design is made up of two parts:

1) *what* to design, and
2) *how to* design it.

Think and design with a purpose

The manual focusses on the second part, how to design educational materials. It addresses basic design strategies that can promote successful and enjoyable learning experiences. You may find that some of these strategies seem to make just good common sense and, maybe, you will realize you are already using some of them. If so, you will come to understand the reason or purpose for using such strategies. It will get you to begin thinking more *purposefully* about how it is you design educational materials. This will assist you in designing successful materials that achieve what it is you intend people to know and do — design with a purpose.

The key is in how and where you use strategies

A basic manual such as this does not pretend to have all the answers to your questions. The area of learning and instructional design is vast. Also, the key lies not so much in the strategies themselves, but in how and where you use them. There are many ways to approach a design. Therefore, we do not suppose that you use all of the strategies discussed here in all of your materials. Remember, every piece of instruction will be different depending on the subject area and types of learners you are working with.

Look to yourself for some of the answers

When reading the manual, keep in mind that answers do not always come from books. Books can be a valuable asset, but remember you too are a valuable asset. You have been and continue to be a learner. So we encourage you to look to yourself for some of these answers. As you read through the manual, continuously ask yourself such questions as, "How do I read?", "What kinds of learning experiences are most enjoyable to me?" and "What things help me learn the most?" By reflecting on your own learning experiences you may be able to add to your understanding of how to design effective educational materials.

Why is instructional design important?

Knowledge serves a purpose

You've decided to teach health care professionals something. Perhaps you are training community health care workers in proper aseptic techniques or introductory clinical skills. There are specific areas of knowledge and skills that you intend learners to know and do. The knowledge that you are trying to pass on to them is not just information, it has to be useful to them in some way. In other words, the knowledge has a purpose. For instance, you know all the names and directions of the roads in a village. But why do you know them? You know them so that you can move around the village without getting lost or wasting a lot of time getting somewhere. Knowledge serves a purpose.

Design serves a purpose

Whatever the instruction, you have already determined that there is a need for such instruction and what that instruction should be. In short, you are designing and developing educational materials with a specific *purpose* in mind. Your design serves a purpose.

However, instruction is successful if it attains what it set out to achieve and the target group enjoys the learning experience. If you design a seminar that does not help anyone, yet it was enjoyable, then the instruction has not been effective. If you design a course that conveys all the information that is needed but is laborious and unmotivating for participants, then, again your instruction has not been effective. Consider for a moment a course that you have taken which has been less than effective — you learned little or it was not enjoyable. What made it this way? What could have made it better?

Design knowledge with a purpose

A basic understanding of instructional design strategies may help you develop better educational materials. Better materials are those that design knowledge with a specific purpose in mind and can reach their goals. This manual discusses some basic instructional design strategies that may assist you in thinking about how to organize and sequence your materials more effectively. Making your materials more effective helps to:

1) make your job easier
2) make it clear to learners what and how to learn
3) improve the opportunity for learners to understand and remember what needs to be learned.

How is the manual organized?

The manual is written in easy, non-technical language. It is intended to be user friendly. For easy use, it is not accompanied by supporting instructional aids like cassettes or slides. Therefore, through the reading, examples and practice activities you will be able to teach yourself and others about instructional design strategies.

Framework for the manual

Based on what experts tell us about how people learn, the manual centres on answering three primary design questions:

1) How can I focus the learners' attention?
2) How can I organize the instruction to promote learning?
3) How can I facilitate integration to promote learning?

These three questions form the backbone of the manual. To answer these design questions, the manual is divided into five main parts. Each part is further divided into chapters.

Part 1: Learning

Part One explains the three primary stages of learning. It connects these stages of learning to the different aspects of instructional design.

Part 2: Focusing the Learners'Attention

Part Two reviews four strategies that may be useful in focusing the attention of learners:

1) learning objectives
2) advance organizers
3) margin call-outs, and
4) visual signals.

Each strategy is discussed in terms of importance, guidelines for writing them, and activities that allow you to practise.

Part 3: Helping People to Organize Their Learning

In this next part, Part Three, strategies that may be useful in organizing the learning are discussed. These strategies include:

1) verbal signals
2) summaries, and
3) examples.

As in Part Two, each strategy is discussed in terms of importance. Guidelines for writing strategies and activities that allow you to practice them are also included.

Part 4: Helping People Integrate Their Learning

Part Four reviews the use of:

1) practice activities
2) feedback, and
3) inserted questions to help learners to integrate what they are learning.

Integration of information is critical if learning is to be useful. Will your readers remember at a later date something they learned today? The more involvement with the information, the stronger in memory it becomes.

Part 5: Putting it All Together

Part Five summarizes all the strategies discussed in Parts Two, Three, and Four. The strategies are organized into what to use at the beginning, middle and end of your instruction. A glossary and reading source list are included in the last few pages of the manual.

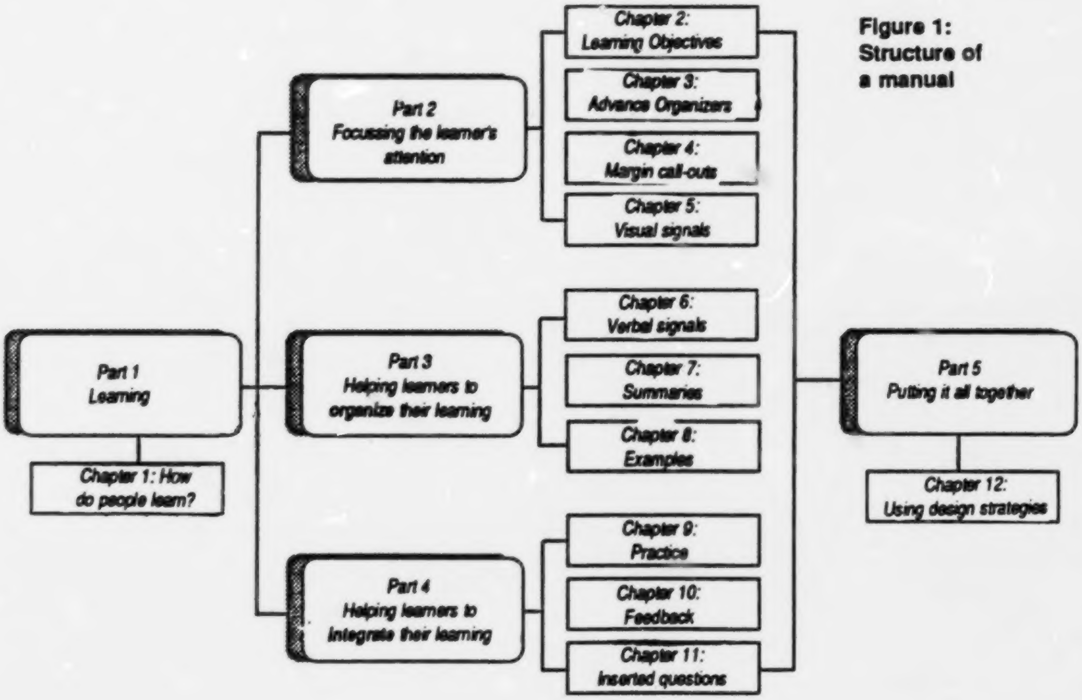
Part 1
Learning
Chapter 1: How do people learn?
Part 2
Focussing the learner's attention
Chapter 2: Learning Objectives
Chapter 3: Advance Organizers
Chapter 4: Margin call-outs
Chapter 5: Visual signals
Part 3
Helping learners to organize their learning
Chapter 6: Verbal signals
Chapter 7: Summaries
Chapter 8: Examples
Part 4
Helping learners to integrate their learning
Chapter 9: Practice
Chapter 10: Feedback
Chapter 11: Inserted questions
Part 5
Putting it all together
Chapter 12: Using design strategies

Figure 1: Structure of a manual

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How do you use this manual?

Suggestions

There are several ways to consider using the manual. First, you could be reading it for your own personal use — as self-learning. Secondly, you may use it to teach others in a workshop or seminar. Yet again, think of it as a reference guide that you may consult from time to time when designing your materials. The manual is presented in what we feel is a logical flow, but you may desire to change the order of parts and/or chapters. Scan through the manual to get a feel of what is there and then decide what suits you best. Each of the five parts consists of individual chapters so that you can work with a section at a time.

Scan the manual before you begin

To help you scan the manual, there are brief notes in bold print listed in the right and left margins of pages. These are called *margin call-outs*, a strategy you will learn in Chapter Four. The heading that appears to the left this paragraph is one example of a margin call-out. Margin call-outs summarize key points on a page. Each call-out is placed alongside the paragraph that explains that main point. As you browse through the pages, read the margin call-outs to get a sense of what is contained in each chapter. This may help you decide on how to use the manual in a way that is best for you. Also, after you have read the manual for the first time, the margin call-outs may be useful as a means of reviewing select chapters at a later date.

How the chapters are designed

Each chapter presents one design strategy. At the beginning of each chapter are *learning objectives* that tell you what you will be able to do after you have read the chapter. The importance of each strategy is explained. As you read, relate the information to your own experiences. How is what you read different or similar to past design projects which you have worked on? Ask yourself if it makes sense to use such a strategy in a project you are currently working on.

There are health related *examples* taken from various sources to show you different ways to use what is discussed. In each chapter, there are boxes which contain *summaries* that highlight the main points from the reading. There are also *guidelines* on how to construct and use such strategies. Lastly, there are *practice activities* that allow you to try your hand at using some of the strategies.

For additional support, a *glossary* located at the back of the manual defines the words and ideas presented in the manual. Also, some *references* are provided which may be sources for additional information. These references were selected because their language is easy to read and understand.

Suggestions for reading chapters

We suggest that as you read each chapter, you should:

1) Scan the right and left *margins* to get a feeling for what is there.
2) Read the *learning objectives*. The objectives will tell you in specific terms what you will be able to know and do at the end of the chapter.
3) Read the main body of information and *relate* it to the materials you are currently designing.
4) Review the *examples* to see different ways of using the design strategies.
5) Read the *summaries* contained in the boxes. These briefly review the important points in the reading.
6) Do the *practice activities*. This will give you a chance to use what you have read and to look at other examples.
7) Look over the *glossary* to review the key terms used in the manual and *references* for additional sources of information.

Suggestions for workshops

We suggest that if you are using the manual for teaching in a seminar or workshop, you should:

1) Consider using the summary boxes in each chapter as focus points for lecture and discussion. If possible, create overhead transparencies of the summary boxes for your presentations since they are a condensed version of the information contained in the manual.
2) The practice activities ask learners to relate the design strategies to work they are currently involved with. Consider asking participants in your seminar or workshop to:
    - incorporate certain design strategies into educational materials they have individually designed in the past
    - incorporate certain design strategies into educational materials they are currently working on as individuals
    - incorporate certain design strategies into one design project that is common to the group as a whole, and/or
    - critique various educational materials and make suggestions for improvement.

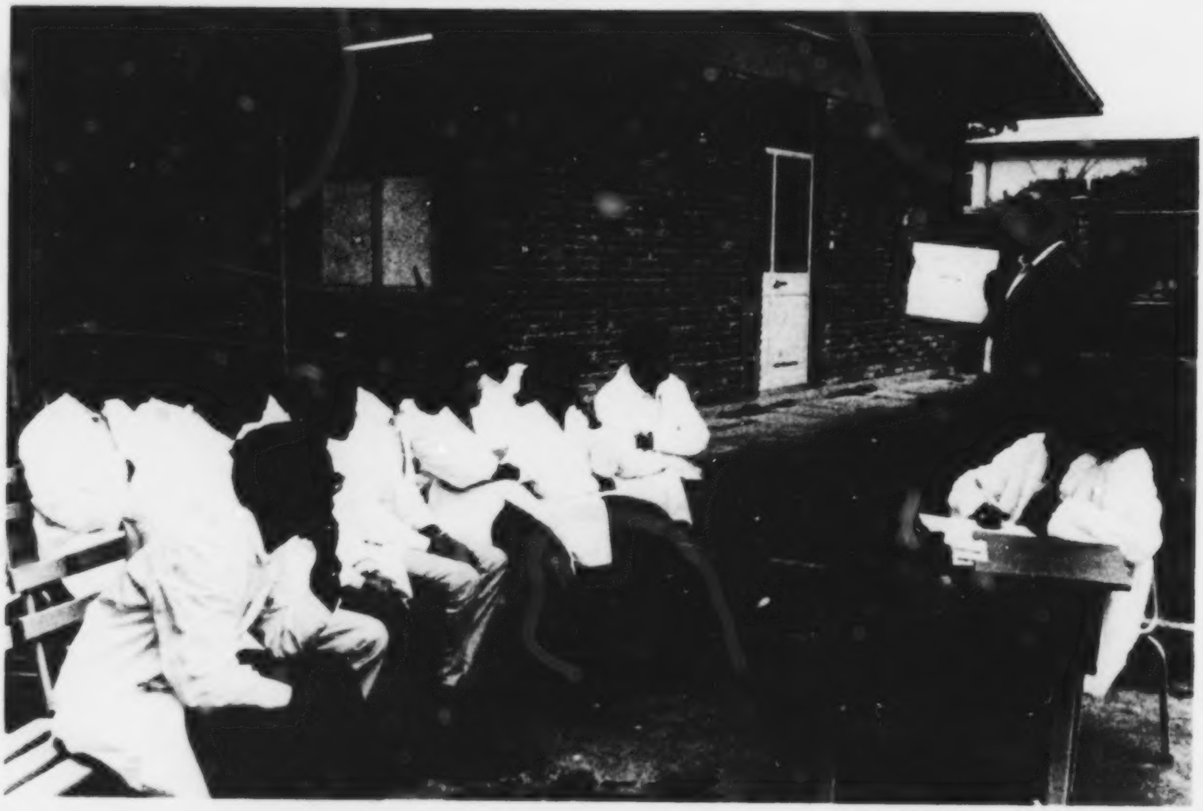
Be creative

Lastly, the manual provides you with general strategies for designing educational materials. The focus is more on written text, but consider using the strategies with other forms of instruction. For instance, oral presentations or slide tape productions. Also, this is a basic manual, so don't let it restrict you. B*e creative!* For example, when we discuss the use of learning objectives to focus learning, we use examples of brief, single statements. But it could be that your materials and subject areas lend themselves to pictures or illustrations. Likewise, if you desire to use objectives in a training seminar, how about considering role playing as a "visual" objective? Dare to let your mind wander outside of what is presented here. Once again, be creative!

Part One

Learning

Understanding what experts tell us about how people learn, we can extract ways to design and present educational materials that make learning easier. Part One highlights the primary stages of learning and explains how the stages are translated into design strategies.



When designing educational materials, incorporate design features which will focus attention on what has to be learnt

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Chapter 1
How Do People Learn?

Chapter objectives

At the end of this first chapter, you will be able to:

1) identify the three stages of learning
2) relate the stages of learning to instructional design, and
3) list design strategies that focus, organize, and integrate instruction.

Design for Learning

**Stage 1:
Paying attention
to information**

How is it that we learn? Experts say that meaningful learning takes place in three main stages. First, in order to learn something you have to be *attentive* to it. That is to say, you have to see it, hear it, feel it, smell it, and/or taste it. Think for a moment of all that you come in contact with in any given day. There are signs, newspapers, people talking, and noises everywhere. Your senses could not possibly take in all that is around you, so your body is able to "filter" out things it won't use. It is like going to the market to shop. You select certain foods you need and leave others. How often are you trying to do two things at one time? Consider how you may be talking to someone on the phone and rummaging through your desk at the same time. Or how you may be eating a meal and trying to read a newspaper at the same time. Are you paying partial attention to both things or more to one thing than the other? The point is that learning involves what we are paying attention to and how much attention we are giving to it.

**Designs that focus
learners' attention**

For meaningful learning, you must get people to pay attention to what it is you want them to learn. So what does this mean for you? Well, when designing your educational materials, you want to incorporate into your materials things that *focus the attention* of the learners. Without this first step, learning cannot take place.

Stage 2: Understanding the Information

Designs that help organize the information

The second stage of learning involves *understanding* the information that is selected. Does it make sense? Is it clear? Does it relate to what the learners already know? For meaningful learning to take place, this means that you must *organize* the information in a way that makes sense to the learners. If this second stage is weak in your design, then learning may be confusing and frustrating. This may result in little or no learning — a hit or miss approach.

Stage 3: Remembering the Information

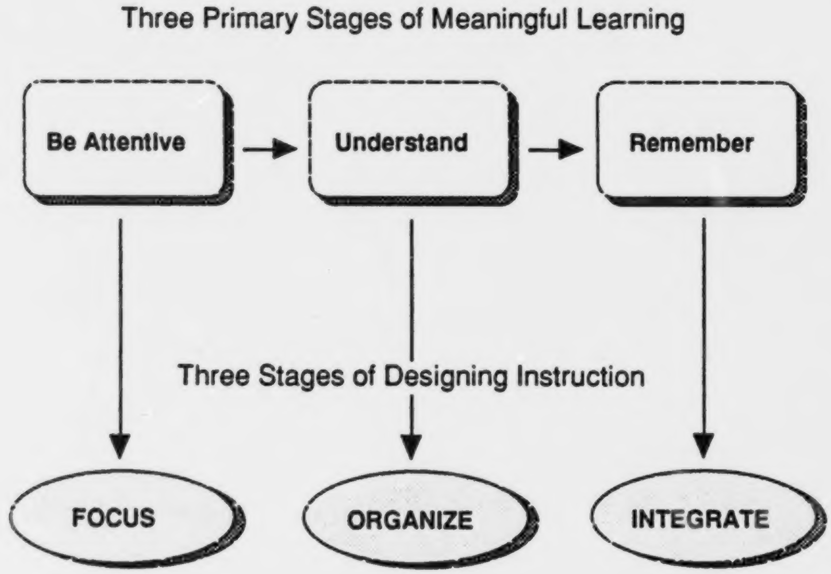
Designs that help integrate the information

Thirdly, can the learners *remember* what has been learned? Can they recall something learned today at a later date? If they can't recall information when they need it, learning has been ineffective. To ensure meaningful learning, this suggests that your designs must promote the *integration* of information. This implies connecting the information together in such a way that it can be remembered when necessary. The more involvement the learners have with the information, the stronger it becomes in memory.

How people learn affects the design of the materials

By looking at how it is we learn, we can extract ways to design and present instruction that makes learning easier and better. Below, Figure 2 sums up the three stages of meaningful learning and their relation to instructional design.

Figure 2


Three Primary Stages of Meaningful Learning
Be Attentive
Understand
Remember
Three Stages of Designing Instruction
FOCUS
ORGANIZE
INTEGRATE

Translating to Design Strategies

Focussing attention to a specific idea

In designing educational materials, you may be interested in teaching ideas or concepts like prevention or family planning. You may also want to teach procedures like giving injections or counting a pulse. From understanding what experts tell us about how people learn, there are a number of strategies to include in your designs that promote better learning of such ideas or procedures. Some design strategies are better for focussing the readers' attention on what is important. Other strategies, like practice activities, can be beneficial for integrating the information.

Using the three stages of learning we have just discussed as our guide, ask yourself the following design questions:

1) How can I focus the readers' attention?
2) How can I organize the instruction to promote learning?
3) How can I facilitate integration to promote learning?

To answer these three questions, we will look at several design strategies. They are all listed below. As you read the following list, some strategies may be familiar to you and others may be new. Do not become uneasy with these terms if all of them seem new to you. We will discuss and practise all of them, so that you will feel comfortable using and talking about them by the time you finish reading the manual.

Using a combination of strategies

It should be noted that there is no clear cut division between the use of strategies. For example, visual signals are useful in both focussing and organizing the instruction. Summaries can promote both organization and integration of instruction. The same strategies may be useful at different stages of learning. So, you may see overlap. However, for the sake of our discussion, they have been arranged into one group according to their most primary use.

Various design strategies are used for different purposes throughout the text. The following is a list of strategies that will be discussed:

Focussing attention

1) Design strategies to focus the learners' attention:
   - *learning objectives* that tell people what to expect
   - *advance organizers* that get them thinking about a topic
   - *margin call-outs* that highlight key words or ideas, and
   - *visual signals* that draw attention to what is important.

Organizing for learning

2) Design strategies to help people organize their learning:
   - *verbal signals* that act as directions in ordering information
   - *summaries* to highlight and review the important parts, and
   - *examples* that show learners the limits of an idea such as model examples and related examples.

Integrating information

3) Design strategies to help people integrate their learning:
   - *practice activities* that give the learners a chance to use or apply what is learned
   - *feedback* on such practice activities so they can check and monitor their progress, and
   - *inserted questions* to allow for deeper thinking about the information.

Now turn to the next page, Part Two, and begin to answer the question, "How can I focus the learners' attention?"

Part Two

Focussing the Learners' Attention

The first part of meaningful learning entails paying attention to the information contained in the instructional materials. It tells readers what information is important. Needless to say, if they fail to pay attention, then little or no learning will take place. If you want your readers to learn something specifically you must point them in that direction. But how does one get them to that do just that?

At the end of Part Two, you will be able to explain, give examples of, and write:

- learning objectives (Chapter 2)
- advance organizers (Chapter 3)
- margin call-outs (Chapter 4), and
- visual signals (Chapter 5).

Chapter 2
Learning Objectives

Chapter objectives

At the end of this chapter, you will be able to:

1) explain four reason why learning objectives are important for your readers
2) explain three reason why learning objectives are important for you in designing educational materials
3) identify the three parts of a learning objective
4) distinguish between action words and vague words when writing learning objectives, and
5) write good learning objectives for your materials.

What are learning objectives?

Objectives convey what is expected

Objectives indicate where to spend efforts

Learning objectives are brief, simple statements that tell people what you expect them to be able to do at the end of the instruction. Using clear and specific language, learning objectives appear at the beginning of a unit of instruction. When objectives are presented before the instruction, people are able to see what will be expected of them before they start the instruction. They are able to see what is the *purpose* of the learning. And they see what is most important for them to learn. Once they know what is expected of them, people can focus their time and energy on attaining those intended goals. Experts tell us that people who are told what is expected of them ahead of time learn better, and guesswork, wasted time and frustration can be greatly reduced.

Let us take an example of learning objectives. Look at the following four objectives from a nutrition lesson for a community health worker in Example 1 on the next page.

Example 1: Nutrition lesson

After reading the chapter and answering all the questions on pages 66-68, the community health worker will be able to:

1) Explain in simple language to mothers and mothers-to-be three major reasons why a good diet is important.
2) Outline to mothers and mothers-to-be a proper diet during pregnancy and lactation.
3) Explain in simple language to mothers and mothers-to-be three common misconceptions about various foods and their related effects on pregnancy and lactation.
4) Detect anaemia by physically examining the skin, lips and eyelids of mothers and mothers-to-be.

Next, review the following example which displays three learning objectives from a lesson on planning health surveys.

Example 2: Health survey lesson

After reading the lesson and doing all the practice activities, the learner will be able to:

1) Explain four uses of a health survey.
2) List all the planning steps needed to design and conduct a health survey.
3) Identify all the advantages and disadvantages of collecting health information through samples as discussed in the reading.

What strikes you about how these objectives are written? What seems common to both examples? If you are the learner, in what ways would these learning objectives help you?

After reading the learning objectives from the two examples on the previous page, it should be quite clear to you, as the learner, what you will be able to do after studying each particular lesson. Each objective is specific, concrete, simple and states primarily one thing you should be able to do.

Look at the first learning objective in the first example on nutrition. It tells you that after studying this chapter, you should be able to *"explain three reasons"*. The second objective informs you that you will be able to *"outline a proper diet"*. Notice that objectives express what the learner should be able to do in rather specific and uncluttered terms.

Objectives help you to know when expectations are met

Objectives help studying for examinations

But learning objectives do more than make clear what is important. They also serve as a measure of achievement. As such, objectives inform learners when they have attained what is expected of them. So they are able to self-check and monitor their learning as they go through the instruction. In addition, objectives also help them to prepare for examinations by telling them what is most important to study.

Objectives help you think clearly about what is worth teaching

Objectives are not only important for learners, they can also be most useful to you when designing instructional materials. Writing objectives forces you to think about what it is that you want the learners to do at the end of the instruction. Can you make a list of what it is they must be able to do? For instance, do you want them to tie bandages properly on different parts of the body? Do you want them to explain family planning methods in easy, simple language ? If you cannot make such a list, you may need to reconsider your approach before continuing any further. Maybe you have not thought this through well enough.

Objectives help you select and design materials

Once you have identified the objectives, you are able to select and design the materials needed to attain such objectives. This is a useful instructional planning tool for you. It was once said that, *"If you don't know where you are going, any road will take you there."* And so it is with designing educational materials. You must know what direction you are going in before you can decide on what and how to instruct your learners.

Objectives help you prepare examinations

Objectives may help you as a teacher in preparing for examinations. Objectives can be transformed into test questions. At the beginning of the instruction you told your learners what was expected of them. At the end, you use these same objectives to determine how successful they were in achieving these objectives. This prevents examinations from being irrelevant and unfair and makes exam preparation less time consuming. So you can see that using learning objectives is important to both learners and teachers in many ways.

In summary, objectives provide a focus for the readers by telling them:

- *what is expected*
- *where to spend their efforts*
- *when expectations have been met*
- *how to prepare for examinations*

*In summary, objectives help the **Instructor** or **designer** in*

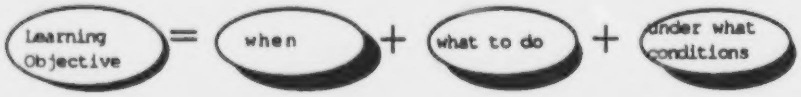
- *thinking clearly about what is worth teaching*
- *selecting and designing instructional materials*
- *preparing examinations*

As stated previously, learning objectives state in clear, simple language what it is that the learner should be able to do at the end of the instruction. So it is a single statement in terms of outcomes or products.

Return to the first example and review the learning objectives for this nutrition lesson. There is an introductory statement followed by three learning objectives. The introductory statement says, *"After reading the chapter and answering all the questions on pages 66-68, the community health worker will be able to:"* So it states when the learners should be able to do something. Now look at the first of the three objectives. What does it say they should be able to do? The first word says that they must *"explain"* something. But explain what? The rest of the objective goes on to say, *"three major reasons why a good diet is important."* So the learning objective says what to do and under what conditions to do it.

Notice that we said that a learning objective says three things:

1) It says when learners will be able to do something.
2) It says what they will be able to do.
3) It says under what conditions it should be done.



When preparing learning objectives, it may be helpful for you to guide yourself by asking three questions:

1) What do I want the learners to do?
2) Under what conditions do I want them to do it?
3) When should they be able to to do it?

Avoid vague or ambiguous words

The common problem with preparing objectives is the use of ambiguous or vague words. For instance, objectives with such words as to "know", "understand", "express", "appreciate", and "learn" have many meanings. What does it mean to "know" something? What does it mean to "understand" something? Does the word understand mean to explain something to someone else? Or does understand mean to demonstrate how to do something? Using these types of vague words leaves learners guessing what you intend for them to do.

Use action words

In contrast, consider more *action words* such as to list, draw, write, contrast, wash, build and mark. Here, learners can understand clearly what it is they have to do. Be specific and concrete. The key to writing good objectives is using action words and limiting each objective to one (sometimes two) action word(s). Keep them simple. When preparing objectives ask yourself, "What is it that the learners will actually have to do in relation to the action word I've selected? Can I directly observe what it is they are doing?" If you can't observe it, then maybe it is not a good action word. On the next page, Table 1 lists some good action words to use and vague words to avoid.

Table 1

Action words to use such as:

adapt
assess
build
carry
compare
compute
count
create
demonstrate
describe
draw
estimate
explain
identify
list
organize
paraphrase
present
prescribe
print
specify
summarize
simplify
write

Vague words to avoid such as:

appreciate
aware of
believe in
familiar with
feeling for
interest in
learn to
knowledge of
knowledgeable
realize
sense of
understand

Going back to the second example, look at the first three objectives for this health survey lesson. What does each objective ask the reader to do? In other words, ask yourself what is the action word in each objective? Going in order, list what each objective asks students to do on a separate sheet of paper.The correct responses are written upside down. Compare your answer.

Objective 1: (Answer: Explain)

Objective 2: (Answer: List)

Objective 3: (Answer: Identify)

Continuing with the same objectives,list each of the conditions under which this to be done. The correct response is written upside down.

Objective 1: (Answer: four uses of a health survey)

Objective 2: (Answer:All the planning steps needed to design and conduct a health survey.)

Objective 3: (Answer: All the advantages and disadvantages of collecting health information through samples as discussed in the reading.)

Lastly, when are people supposed to be able to do these things?

Answer: (Answer: After reading the lesson and doing all the practice activities.)

Guidelines in Preparing Learning Objectives

Remember

When preparing learning objectives remember to:

1) Select what learners are to know and do *specifically* .
2) Match the content or subject of your materials to the objectives.
3) Present these objectives at the beginning of instruction.
4) State when you want them to be able to do this.
5) State under what conditions you want them to do this.
6) Use short, simple sentences.
7) Use *action* words that concretely state what you want them to do.
8) Limit each objective to one action word.

In summary, when preparing objectives ask yourself:

- *What do I want the learners to do?*
- *Under what circumstances do I want them to do it?*
- *When should the learners be able to do it?*
- *Is the objective expressed in action or vague terms?*
  (Can I directly observe what is stated in the objective?)

Practice Activity

1) Can you distinguish good, clear objectives from vague objectives? Review the following learning objectives. On a separate sheeet of paper indicate if you think it is clearly understandable or vague. Rewrite any vague objectives.

Objectives At the end of the lesson, a person will be able to:

a) draw a nutrition chart that accurately measures the growth of children in the community.
b) understand the importance of personal and family hygiene to lifelong health.
c) appreciate the chronic health problems of elderly people.
d) set-up a fully functional household size water collection tank without assistance.
e) know the value of promoting a healthy environment in the community.

2) Try writing learning objectives for the two following scenarios. List them as brief single sentences in the space provided directly below each scenario. Remember to include the three parts of an objective:

- the action
- condition(s), and
- when.

Scenario 1 You are preparing a unit of instruction on guinea worm. After they have studied the unit, you want your readers to be able to explain to anyone how guinea worm is contracted, how it is spread to other people, and how to prevent it. Also, you want them to be able to recognize the disease in children and adults and take appropriate action. Write learning objectives for this unit of instruction.

Scenario 2

You are preparing a descriptive text on the technique of giving proper injections. After your learners have studied the text, there will be a demonstration of the technique. At the end of the session, you want the learners to be able to assemble a syringe and use aseptic techniques in preparing and administering an injection. They must select the appropriate angle, depth and location on the body for any injection. Also, you expect them to know the difference between intramuscular and subcutaneous injections. Write learning objectives for the descriptive text on the technique.

3) Consider your area of expertise for a health instructional problem you currently need to address. Practise writing learning objectives for one small piece of instruction.

4) Review some instructional materials you have designed and developed in the past. Did you use learning objectives? If yes, are they written well? Do the objectives match what was conveyed in your materials? If you did not use objectives, would they have improved your design?

Advance organizers are a design feature of educational materials: they focus the learners' attention on the main ideas to be learnt

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Chapter 3
Advance Organizers

Chapter Objectives

At the end of this chapter, you will be able to:

1) explain three important features of advance organizers
2) distinguish advance organizers from typical summaries and introductions, and
3) design or select advance organizers for your educational materials.

What are advance organizers?

Advance organizers direct thinking in a topic area

Another means of focussing peoples' attention is with advance organizers. Commonly, they are one or two brief paragraph(s) appearing before the instruction. It introduces the main ideas to be taught in the upcoming instruction in the form of an abstract. Advance organizers are helpful in that they direct the reader to begin thinking along the lines of the topic to be studied.

Advance organizers are more than summaries or introductions

Advance organizers connect old knowledge to new knowledge

Do not confuse advance organizers with introductions (typically found at the beginning of instruction) or with summaries. They are different. They are more than introductions or summaries. Introductions usually highlight what the new instruction is about and are not necessarily advance organizers. Summaries commonly restate the important ideas that were just learned. Think of an advance organizer as the blending of an introduction and summary together. The strength of an advance organizer is that it reminds the readers of what they already know (summary) and relates it to what is important in the instruction which they are about to begin (introduction). So it helps to begin *connecting* what they already know with what is yet to be learned in the instruction. Think of it as connecting the old knowledge with the new knowledge.

For example, consider that learners have just successfully completed a unit on Epidemics. Next, they are to begin a unit on Water and

Food Safety. You could design an advance organizer at the beginning of this unit on Water Safety. Below, Example 1, shows how an advance organizer might look.

Example 1

> Epidemics are a result of an illness being quickly passed from person to another person within a community so that many are sick at the same time. As we read in the previous unit, to keep epidemics from spreading you should:
>
> 1) keep those who are ill away from other community members, especially from children and the elderly
> 2) locate the source of the illness
> 3) inform community leaders and those in charge of places where people congregate of the problem and its source
> 4) educate people how the illness began and how to stop it, and
> 5) treat the illness.
>
> Sources of epidemics include lack of protection acquired from immunization and contaminated food and water supplies. In this next unit, we will learn to look more closely at these sources as a means of stopping epidemics from starting. Dirty water from rivers or wells and unclean food contaminated by chemicals or harmful bacteria can cause diarrhoea and other diseases. Through immunization and various techniques in keeping food and water clean epidemics can be prevented and community health promoted.

Be certain that the learners really do have prior knowledge

In the above example, note that the narrative is about a paragraph in length and focusses on the major ideas of the cause, treatment and prevention of epidemics. It *restates* the previous unit in broad terms and *introduces* the new unit in broad terms as well. But remember, the key to a successful organizer is that the learners do in fact have the prior knowledge. Notice that the advance organizer can only be designed once you have developed the learning objectives for the unit. The advance organizer can be either something you write anew or an excerpt cut from a passage of already existing materials.

In summary, an advance organizer:

- *is presented before the instruction*
- *consists of one or two brief paragraphs that briefly present the main ideas*
- *gets the learners thinking along the general lines of the topic to be studied*
- *directs them to what is important in the upcoming instruction*
- *connects old knowledge with new knowledge*
- *is a combination of a typical introduction and a summary*

Guidelines in Preparing Advance Organizers

Write the organizer yourself

Adapt existing materials

To prepare an advance organizer you can design one by writing it yourself, which is most common, or you can select one or two paragraphs from an already existing passage of text. If you are adapting materials from two different sources, you might be able to cut a passage from one of these two sources. This is sometimes more difficult, but it will depend on the subject and available sources.

To help you design or select an advance organizer, consider the following steps:

1) Identify the objectives of the new unit of instruction.
2) Identify what learners already know up to this point.
3) Summarize the main idea(s) in the previous unit.
4) Summarize the main idea(s) in this new upcoming unit.
5) Compare the previous and new instruction for similarities.
6) Relate the previous instruction to the new instruction.
7) Locate possible examples from the materials which may be used.
8) Present the main ideas in the same order they are introduced in your new instruction.
9) Using brief narrative, write and introduce the new unit with it.

In following these nine steps, it may be sometimes helpful to list the main ideas on a piece of paper. One way would be to create a short table like the one below in Example 2. The columns in the table match steps 3, 4, 5, 6, and 7 on the previous page. This is how we designed the previous advance organizer to relate Epidemics to Water Safety in the first example and it is one way to approach the design of an advance organizer. There are different ways to approach this. What other ways can you think of that could help you write an organizer?

Example 2

Prior Unit	Relationship	New Unit	Similarities	Examples
• what are epidemics	• sources of epidemics	water safety	• prevent epidemics	• rivers
• preventing the spread of epidemics		• food safety	• promote health	• wells
		• immunization		• bacteria
				• chemical

Practice Activity

1) Read Example 3 at the top of the next page. This is a passage from a text on the role of statistics in biology and health care delivery. Is this example a good advance organizer? If yes, give several reasons why it is a good advance organizer. If you respond no, explain why it is not and give a few suggestions as to how to make it a good advance organizer.

Example 3

> In public health and clinical medicine, many statistical concepts are employed, consciously or subconsciously, in making decisions related to such matters as: clinical diagnoses; predicting likely outcomes of an intervention programme in communities, or the course of a disease in individual patients; selecting appropriate intervention programmes for particular communities or treatments for patients, etc. In laboratory medicine, statistics are constantly used in everyday practice. Knowledge of statistics has also become essential for an understanding and critical appreciation of communications in medical journals. A thorough grasp of statistical principles is thus an absolute necessity for the planning, conduct and analysis of studies to assess health situations and trends, as well as for the conduct of biomedical, clinical and public health research.

2) Try writing an advance organizer. Using the nine steps as previously outlined as your guide, write an advance organizer for some instruction you are currently designing. If it is helpful for you, use the matrix from Example 2 to note the main ideas.

3) Review some of the educational materials you have designed and developed in the past. Would advance organizers have been useful in these situations? Would advance organizers be relevant for any educational materials you are currently working on?

Chapter 4
Margin Call-outs

Chapter objectives

At the end of this chapter, you will be able to:

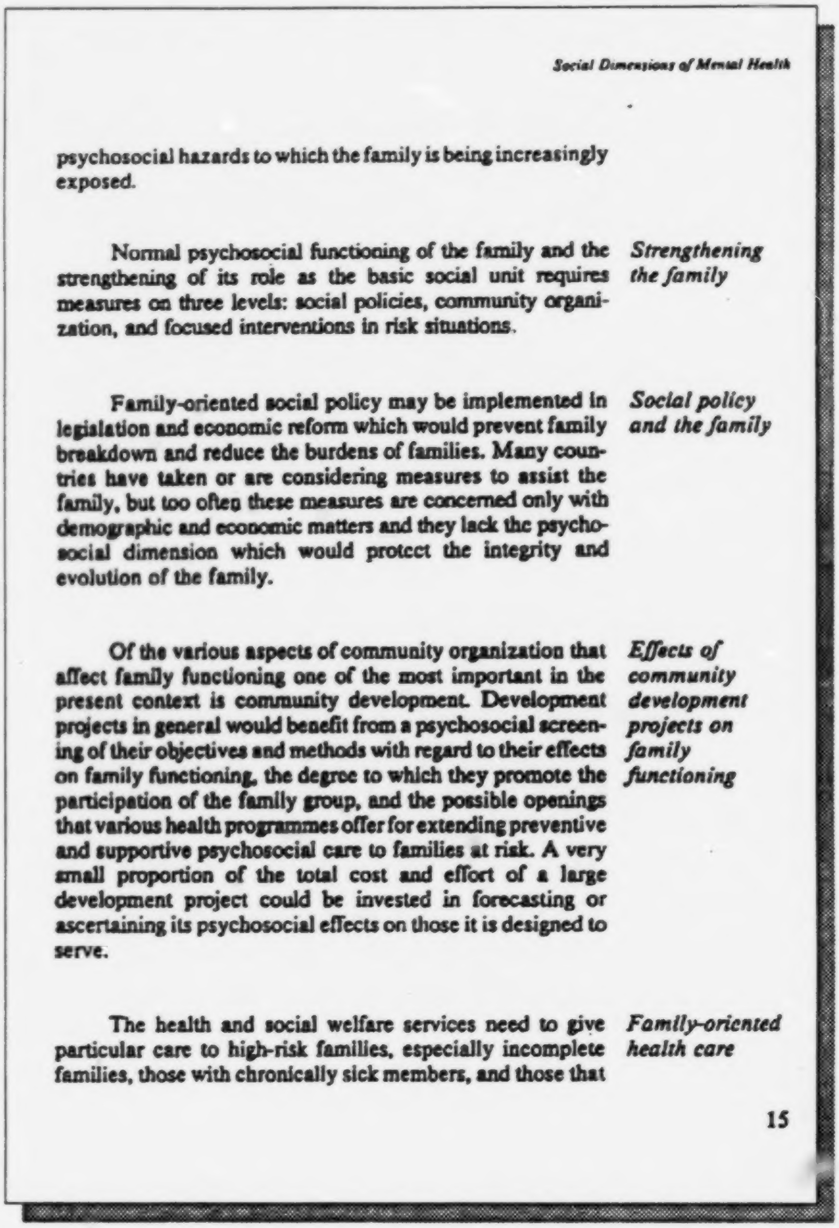
1) explain two reasons why margin call-outs are important
2) identify three ways in which margin call-outs can be used, and
3) design margin call-outs for your educational materials.

What are margin call-outs?

Margin call-outs are brief, concise notes located in the margins of instruction. As notes, margin call-outs can be titles, headings, important terms, steps in a procedure and/or brief definitions. In this manual, you'll notice that call-outs are used along the left and right hand margin of each page. They appear distinctly separate from the main body of text.

On the following pages are four examples that use margin call-outs. As you look at these examples, be attentive to how it is you read these pages. What is similar or different between the four examples? Do the margin call-outs help your reading in any way? How are they used in each example?

Example 1



Social Dimensions of Mental Health

psychosocial hazards to which the family is being increasingly exposed.

Strengthening the family

Normal psychosocial functioning of the family and the strengthening of its role as the basic social unit requires measures on three levels: social policies, community organization, and focused interventions in risk situations.

Social policy and the family

Family-oriented social policy may be implemented in legislation and economic reform which would prevent family breakdown and reduce the burdens of families. Many countries have taken or are considering measures to assist the family, but too often these measures are concerned only with demographic and economic matters and they lack the psychosocial dimension which would protect the integrity and evolution of the family.

Effects of community development projects on family functioning

Of the various aspects of community organization that affect family functioning one of the most important in the present context is community development. Development projects in general would benefit from a psychosocial screening of their objectives and methods with regard to their effects on family functioning, the degree to which they promote the participation of the family group, and the possible openings that various health programmes offer for extending preventive and supportive psychosocial care to families at risk. A very small proportion of the total cost and effort of a large development project could be invested in forecasting or ascertaining its psychosocial effects on those it is designed to serve.

Family-oriented health care

The health and social welfare services need to give particular care to high-risk families, especially incomplete families, those with chronically sick members, and those that

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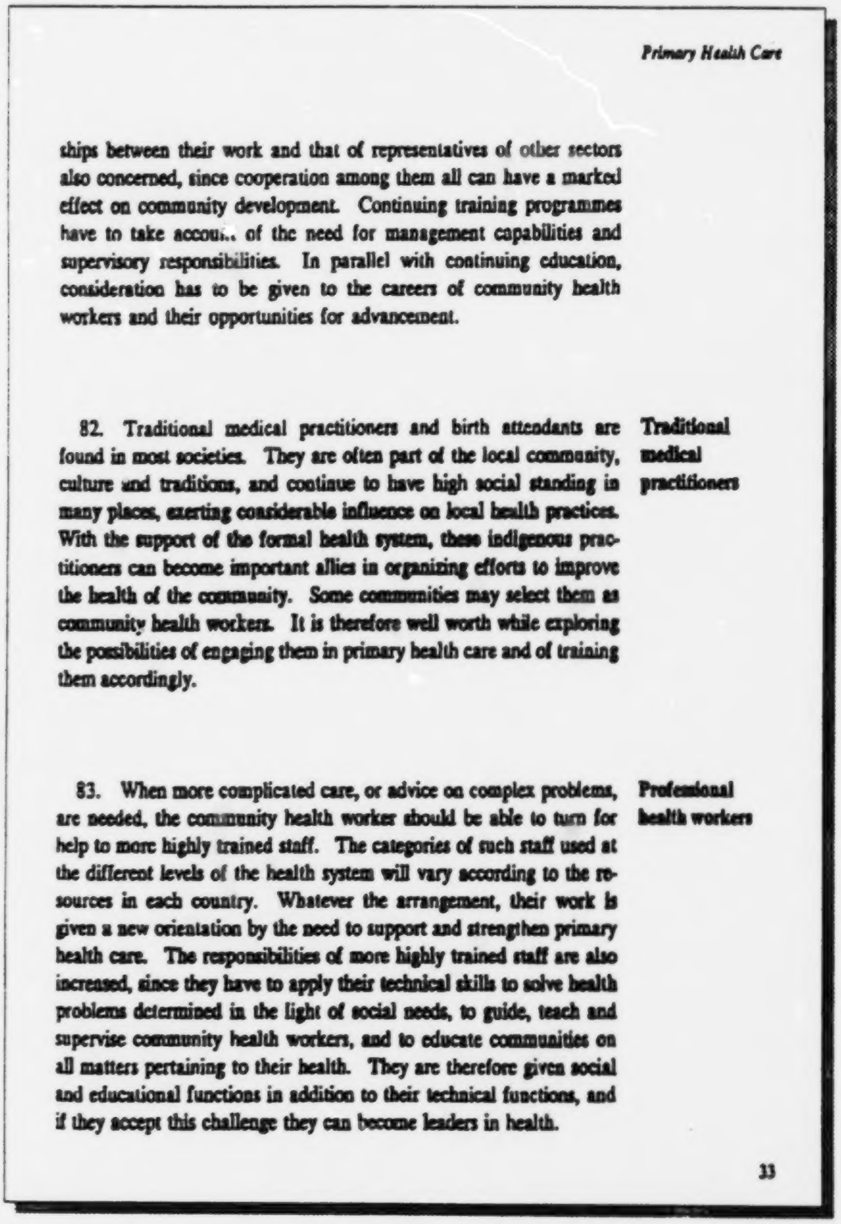
Example 2



ships between their work and that of representatives of other sectors also concerned, since cooperation among them all can have a marked effect on community development. Continuing training programmes have to take account of the need for management capabilities and supervisory responsibilities. In parallel with continuing education, consideration has to be given to the careers of community health workers and their opportunities for advancement.

Traditional medical practitioners

82. Traditional medical practitioners and birth attendants are found in most societies. They are often part of the local community, culture and traditions, and continue to have high social standing in many places, exerting considerable influence on local health practices. With the support of the formal health system, these indigenous practitioners can become important allies in organizing efforts to improve the health of the community. Some communities may select them as community health workers. It is therefore well worth while exploring the possibilities of engaging them in primary health care and of training them accordingly.

Professional health workers

83. When more complicated care, or advice on complex problems, are needed, the community health worker should be able to turn for help to more highly trained staff. The categories of such staff used at the different levels of the health system will vary according to the resources in each country. Whatever the arrangement, their work is given a new orientation by the need to support and strengthen primary health care. The responsibilities of more highly trained staff are also increased, since they have to apply their technical skills to solve health problems determined in the light of social needs, to guide, teach and supervise community health workers, and to educate communities on all matters pertaining to their health. They are therefore given social and educational functions in addition to their technical functions, and if they accept this challenge they can become leaders in health.

As you read over the previous examples, did you find that you readthe entire page? Most likely you noticed that you scanned the margins instead. In the few moments of glancing over the margin call-outs, could you get an understanding of what ideas were being conveyed here without fully reading the entire page?

Call-outs as titles

Notice how the call-outs are different in each example. In Example 1, the margin call-outs are more like titles that are assigned to each paragraph. The call-outs are written in italic form which is a different print from the main body of the text. Similarily, in the second example the margin call-outs appear as titles that identify various health roles of people. They are written in bold print to distinguish it from the main body of the text. For different purpose, the margin call-outs can be used as headings or brief definitions.

Call-outs as headings or definitions

The examples are similar to one another in that margin call-outs are:

- brief
- concise
- distinguished from the main text, and
- appear in margins about 1/3 size of text.

Call-outs attract attention

Margin call-outs are important for three reasons. First, call-outs attract readers' attention. It answers the question, "What is this page about?" Someone can scan the margins and quickly get an idea of what is being said. In reading just the margins of Example 1, could you not readily see that it was taken from a page in the sociology area?

Think for a moment of the difference between reading a novel and reading a manual to learn something. When reading a novel most likely you read every page from cover to cover. In contrast, when reading a manual you tend to read parts that you need to know. There may be areas which you are already familiar with and others that are new to you. Therefore, you *select* what you need to read. Margin call-outs allow readers to select what is most relevant to them to read on an individual basis.

Call-outs help to select and scan information

Call-outs help find and access information

Returning to Example 2 again, the call-outs appear as roles of various people. If a reader wanted to explain or define what was meant by the role "traditional medical practitioner", they could readily refer to this specific paragraph. In a similar fashion, key terms can be highlighted in the margins. In this case, margin call-outs could serve as a sort of glossary that can help people in referencing ideas and/or studying.

Call-outs summarize what is important

Thirdly, margin call-outs can summarize what has been said in a specific section or paragraph. It answers the question, "What is most important here?" They can serve as an *ongoing* summary of a page which again aids in accessing and studying information .

In summary, margin call-outs may help to:

- *get the readers' attention*
- *mark what is important*
- *find and access information*
- *continuously summarize what is said*

Guidelines in Preparing Margin Call-outs

Consider the purpose

Consider using margin call-outs in your materials when:

1) introducing key terms, or technical words
2) summarizing major ideas
3) marking a series of steps in a procedure
4) defining key terms, and
5) headings are needed to distinguish between sections.

Remember

In preparing margin call-outs, remember to:

1) use clear, concise words and phrases
2) be as brief as possible.
3) allow adequate margin space between the body of the text and call-outs
4) use printing that is different from the main body of the text, consider using bold or a different type of lettering, and
5) be consistent in how you use margin call-outs.

Practice Activity

1) Try writing margin call-outs. To the right is a page taken from a lesson on health surveys which discusses the various steps involved in planning a survey. Read the passage and then insert margin call-outs within the right margin.

2) Try writing margin call-outs again. However, this time select a page of text from your own materials. Consider selecting a page of text that discusses concepts or ideas. Also, choose a second page that describes a process or procedure.

Planning a health survey

First, prepare a detailed written statement of the objectives of the survey:
The objectives of the survey have to be clearly stated. Each objective must be examined to ensure that it is achievable given the resources of the survey (time, personnel, and money) and availability of data. A check should be made to determine whether information on some of the objectives is already available.

Secondly, determine the items of information required, and specification of definitions, criteria of classification, and methods of collection:
The survey objectives determine the items of data that need to be collected. Only those items necessary for the survey to achieve its objectives should be included; the inclusion of other items, on such grounds as "it would be interesting to know . . . " or "it won't make any difference to ask just one more question..." should be firmly resisted.
The use of each item should be elaborated in terms of its intended classification, tabulation and analysis; dummy tables should be drawn up where relevant, and precoding of classes done where possible. Each item should be well defined, and the criteria and procedures to be used for its collection laid down; data collectors should be trained to apply these criteria in a uniform manner throughout the survey.

Next, define the reference population on which information is to be sought:
The reference population has to be defined both physically and demographically (i.e., its location, size, structure, etc.). A clear definition of the reference population is essential for determination of appropriate sampling procedures and eventual interpretation of the findings. A complete specification of the population to be sampled is the *sampling frame.*

This should be followed by a decision on whether the reference population is to be studied as a whole or in part (sampled):
In making this decision, the size of the reference population has to be considered in relation to the resources available for the study. The advantages and disadvantages of a sample compared with a comprehensive survey should be considered (see "Advantages and disadvantages of collecting information through sample", page 153). A so-called "comprehensive survey" may, in fact, turn out to be a bad sample survey because of low response rates.

Visual signals, such as boxes, highlighting, bullets, or shading, identify for the learner the most important ideas

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Chapter 5
Visual Signals

Chapter Objectives

At the end of this chapter, you will be able to:
1) explain the purpose of visual signals
2) identify five types of visual signals to use in your materials and
3) describe two different ways to use each of the following: highlighting, bullets, boxes, shading and spacing.

What are visual signals?

Visual signals mark what is important to look at

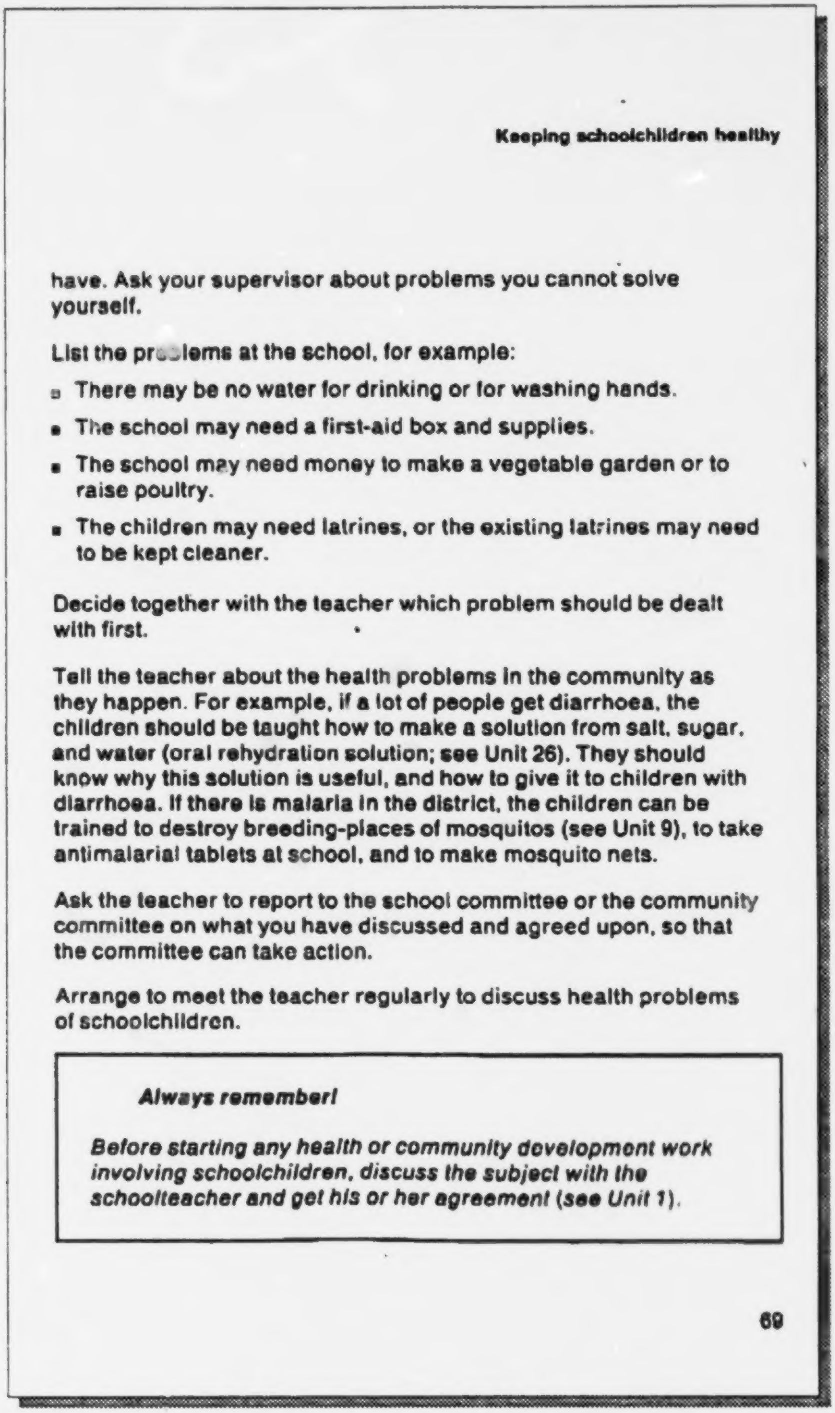
You have decided what the readers should learn. The instruction has a purpose. Visual signals tell readers what are the most important things to pay attention to. In knowing what to look at, people are then better able to direct themselves through the materials.

Think for moment how it is that you decide to read or buy a book. Perhaps you scan through the pages looking at the titles in bold print, pictures or summaries. Also, maybe, you glance over tables, lists and even the table of contents. Whatever your system of deciding whether to read further, you are gleaning visual signals from the book. They serve in getting you to attend to specific things the author wants you to know.

Look at Example 1 on the next page. It is a page of text taken from a lesson on keeping school children healthy that uses several visual signals. As you scan the example for a few moments, pay attention to what you look at first and then second. What can you initially say about the page without having read the entire page?

Look at Example 2 and compare it with the first example. Example 2 is the *same* information, except that it has been designed as straight text -- no visual signals. Do you read this page differently?

Example 1



Keeping schoolchildren healthy

have. Ask your supervisor about problems you cannot solve yourself.

List the problems at the school, for example:

- There may be no water for drinking or for washing hands.
- The school may need a first-aid box and supplies.
- The school may need money to make a vegetable garden or to raise poultry.
- The children may need latrines, or the existing latrines may need to be kept cleaner.

Decide together with the teacher which problem should be dealt with first.

Tell the teacher about the health problems in the community as they happen. For example, if a lot of people get diarrhoea, the children should be taught how to make a solution from salt, sugar, and water (oral rehydration solution; see Unit 26). They should know why this solution is useful, and how to give it to children with diarrhoea. If there is malaria in the district, the children can be trained to destroy breeding-places of mosquitos (see Unit 9), to take antimalarial tablets at school, and to make mosquito nets.

Ask the teacher to report to the school committee or the community committee on what you have discussed and agreed upon, so that the committee can take action.

Arrange to meet the teacher regularly to discuss health problems of schoolchildren.

> ***Always remember!***
>
> *Before starting any health or community development work involving schoolchildren, discuss the subject with the schoolteacher and get his or her agreement (see Unit 1).*

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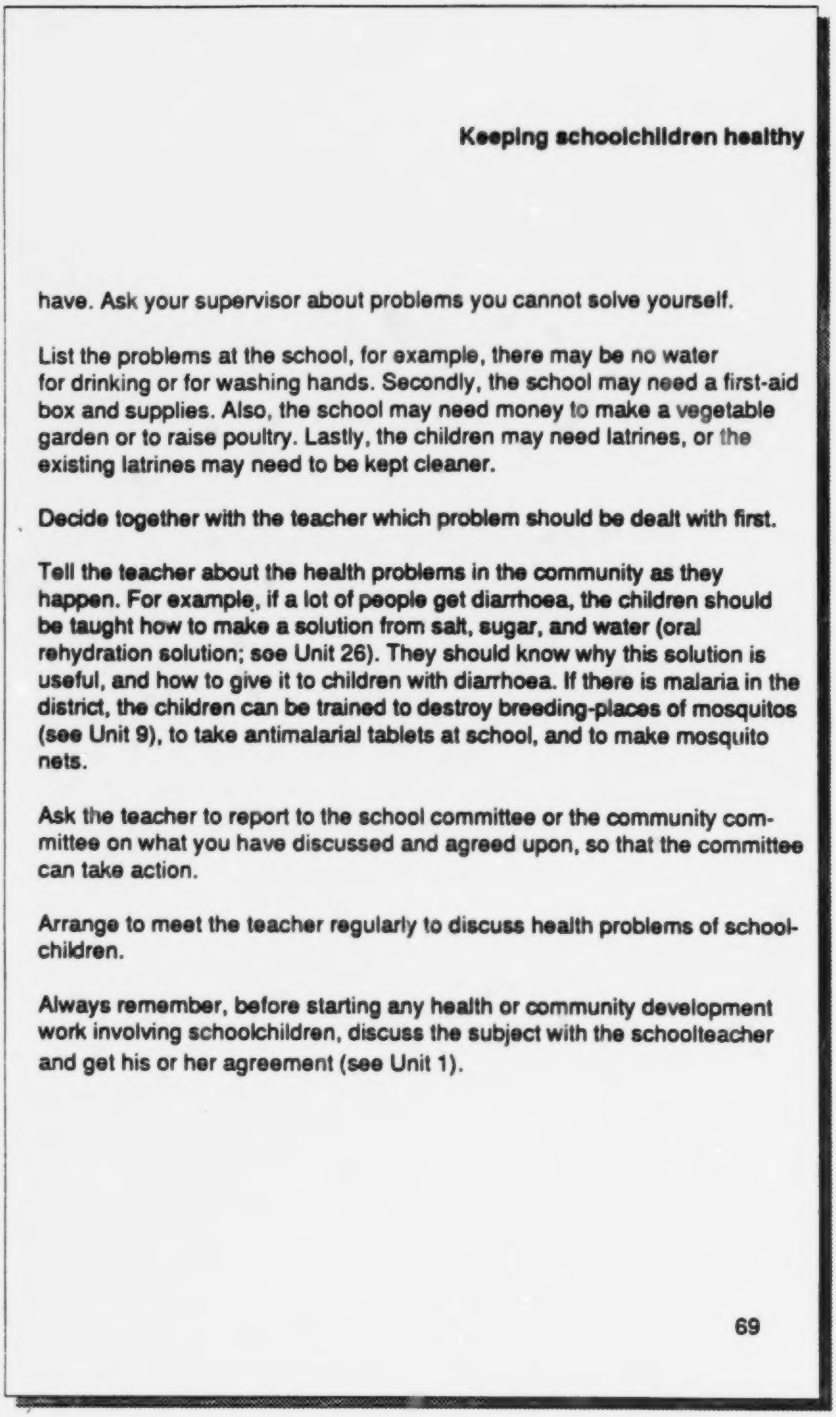
Example 2



Keeping schoolchildren healthy

have. Ask your supervisor about problems you cannot solve yourself.

List the problems at the school, for example, there may be no water for drinking or for washing hands. Secondly, the school may need a first-aid box and supplies. Also, the school may need money to make a vegetable garden or to raise poultry. Lastly, the children may need latrines, or the existing latrines may need to be kept cleaner.

Decide together with the teacher which problem should be dealt with first.

Tell the teacher about the health problems in the community as they happen. For example, if a lot of people get diarrhoea, the children should be taught how to make a solution from salt, sugar, and water (oral rehydration solution; see Unit 26). They should know why this solution is useful, and how to give it to children with diarrhoea. If there is malaria in the district, the children can be trained to destroy breeding-places of mosquitos (see Unit 9), to take antimalarial tablets at school, and to make mosquito nets.

Ask the teacher to report to the school committee or the community committee on what you have discussed and agreed upon, so that the committee can take action.

Arrange to meet the teacher regularly to discuss health problems of schoolchildren.

Always remember, before starting any health or community development work involving schoolchildren, discuss the subject with the schoolteacher and get his or her agreement (see Unit 1).

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A first glance at Example 1 should at once show you that there are four main ideas and a warning statement at the end. The large black dots helped to draw your attention to these four main ideas. The rectangular box and bold print displayed near the bottom of the page helped to focus you on the warning statement. Note that you have only glanced over the page and already you can make a statement about what is there. So not only do visual signals point out what is important, but they also help readers to select and decide what parts they want or need to attend to.

Visual signals help to scan and select information

Example 2 is the same page of information, except that the box, dots, and italic and bold highlighting have been removed – no visual signals. The page is organized as straight text. In comparing the two examples you should have seen that you have to read *all* of Example 2 to get a sense of what the page was about. Also, you will find that Example 2 is comparatively less clear about what information was most important. In the first example the author made it quite clear to you that the four main ideas and warning statement were things that you should not miss. What else can you say about these two examples? Which one do you prefer to read? Which one would you enjoy reading another twenty pages from? Which one would be more helpful to learn from?

There are various kinds of visual signals that you can use to help focus your readers. A partial list includes:

- highlighting words or phrases
- bullets next to lists of ideas or procedures
- boxes around major ideas
- shading boxes or different coloured pages, and
- spacing around text to separate and group information

We will now briefly discuss and give examples of each of these types of visual signals.

Highlighting

Highlighting means drawing attention to a word or phrase. As you read across a page, words that are highlighted stand out above the rest. To draw attention, a word or phrase can be underlined or written in **bold** or *italic* print. Highlighting important key words or emphasizing words or phrases that should not be missed tells the reader what is most important.

Highlighting draws attention to important words or phrases

The highlighting used in Example 3 on the next page shows bold headings to distinguish different types of pneumonia-causing bacteria. Italics are used to highlight the proper names of the bacteria. Again, without reading the entire page you can easily scan it and see that there are three groups of pneumonia (bold print) and five kinds of bacteria (italic print).

Notice that in Example 4 bold print is used to draw attention to the two main headings, two key terms (chloroquine and tetanus), and to emphasize something important to remember (inside the box). In addition, italic print is used to highlight each of the four main symptoms and to place emphasis on the words "half" and "at once".

Where in the educational materials you are designing can highlighting be helpful to your readers? Consider using it when you are introducing words, ideas, or technical terms for the first time. Think about using it when you want to emphasize something. For instance, when you are cautioning or reminding readers, or giving instructions about things they should NOT overlook.

But remember, the key to effective highlighting is to:

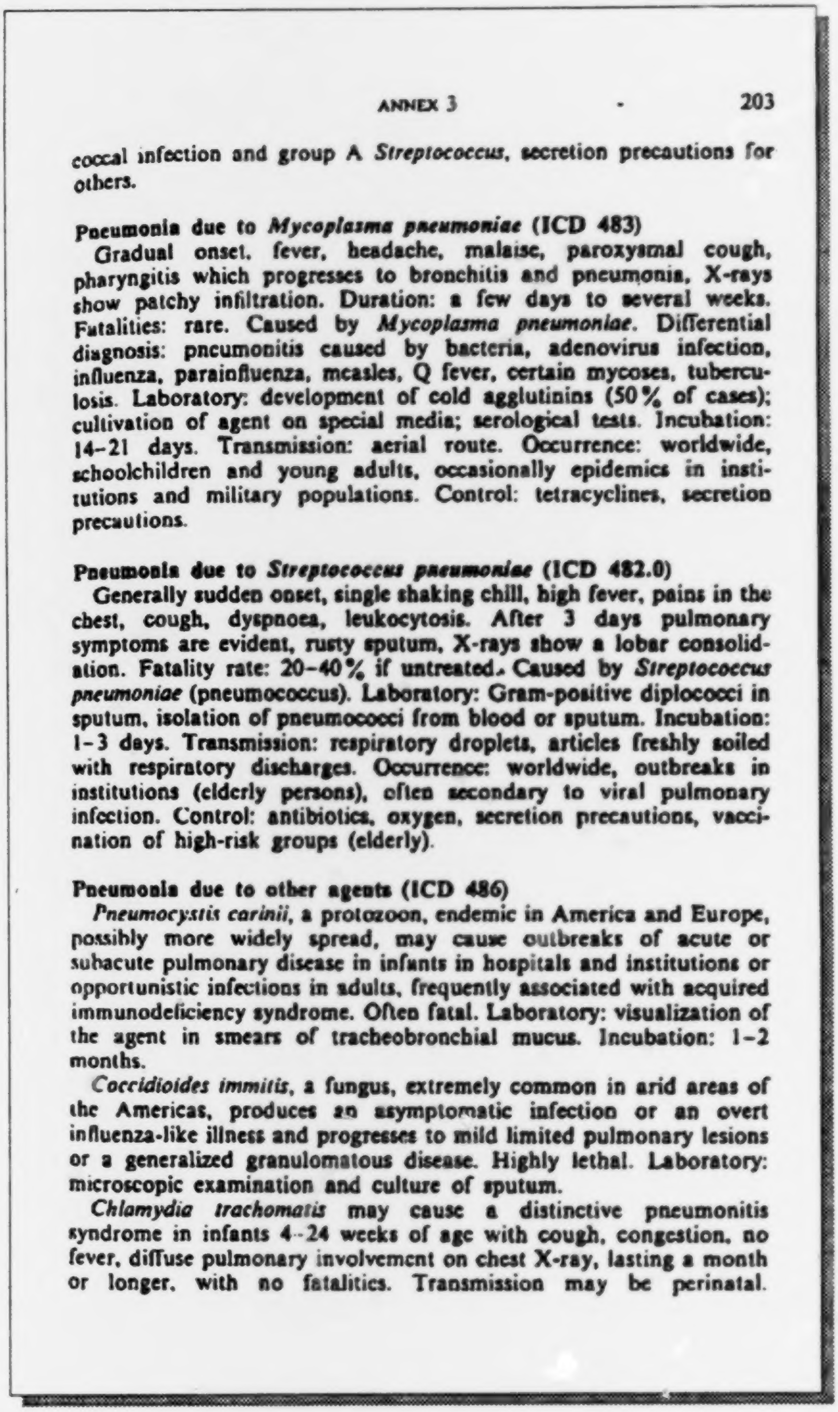
- not overuse it.
- be consistent when using it.

Avoid overuse

Be consistent

Too much highlighting can result in readers actually ignoring the emphasized information. And if you are inconsistent with highlighting strategies, readers can become confused and frustrated. For instance, avoid using both bold and italic print to highlight key terms. Use one or the other and continue using the same approach all the way through the design.

Example 3



ANNEX 3 · 203

coccal infection and group A *Streptococcus*, secretion precautions for others.

Pneumonia due to *Mycoplasma pneumoniae* (ICD 483)
Gradual onset, fever, headache, malaise, paroxysmal cough, pharyngitis which progresses to bronchitis and pneumonia, X-rays show patchy infiltration. Duration: a few days to several weeks. Fatalities: rare. Caused by *Mycoplasma pneumoniae*. Differential diagnosis: pneumonitis caused by bacteria, adenovirus infection, influenza, parainfluenza, measles, Q fever, certain mycoses, tuberculosis. Laboratory: development of cold agglutinins (50% of cases); cultivation of agent on special media; serological tests. Incubation: 14–21 days. Transmission: aerial route. Occurrence: worldwide, schoolchildren and young adults, occasionally epidemics in institutions and military populations. Control: tetracyclines, secretion precautions.

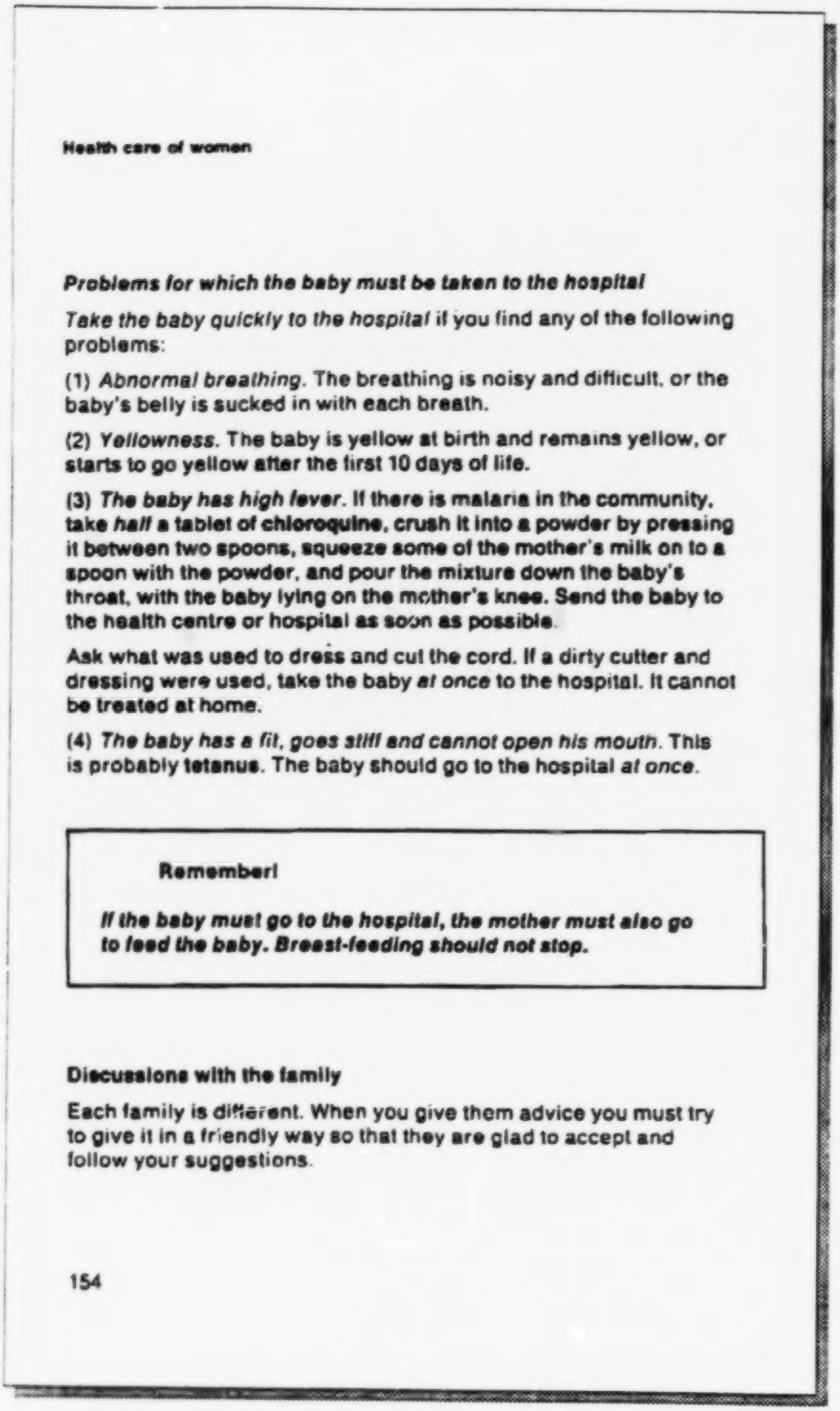
Pneumonia due to *Streptococcus pneumoniae* (ICD 482.0)
Generally sudden onset, single shaking chill, high fever, pains in the chest, cough, dyspnoea, leukocytosis. After 3 days pulmonary symptoms are evident, rusty sputum, X-rays show a lobar consolidation. Fatality rate: 20–40% if untreated. Caused by *Streptococcus pneumoniae* (pneumococcus). Laboratory: Gram-positive diplococci in sputum, isolation of pneumococci from blood or sputum. Incubation: 1–3 days. Transmission: respiratory droplets, articles freshly soiled with respiratory discharges. Occurrence: worldwide, outbreaks in institutions (elderly persons), often secondary to viral pulmonary infection. Control: antibiotics, oxygen, secretion precautions, vaccination of high-risk groups (elderly).

Pneumonia due to other agents (ICD 486)
Pneumocystis carinii, a protozoon, endemic in America and Europe, possibly more widely spread, may cause outbreaks of acute or subacute pulmonary disease in infants in hospitals and institutions or opportunistic infections in adults, frequently associated with acquired immunodeficiency syndrome. Often fatal. Laboratory: visualization of the agent in smears of tracheobronchial mucus. Incubation: 1–2 months.

Coccidioides immitis, a fungus, extremely common in arid areas of the Americas, produces an asymptomatic infection or an overt influenza-like illness and progresses to mild limited pulmonary lesions or a generalized granulomatous disease. Highly lethal. Laboratory: microscopic examination and culture of sputum.

Chlamydia trachomatis may cause a distinctive pneumonitis syndrome in infants 4–24 weeks of age with cough, congestion, no fever, diffuse pulmonary involvement on chest X-ray, lasting a month or longer, with no fatalities. Transmission may be perinatal.

Example 4



Health care of women

Problems for which the baby must be taken to the hospital

Take the baby quickly to the hospital if you find any of the following problems:

(1) *Abnormal breathing.* The breathing is noisy and difficult, or the baby's belly is sucked in with each breath.

(2) *Yellowness.* The baby is yellow at birth and remains yellow, or starts to go yellow after the first 10 days of life.

(3) *The baby has high fever.* If there is malaria in the community, take *half* a tablet of chloroquine, crush it into a powder by pressing it between two spoons, squeeze some of the mother's milk on to a spoon with the powder, and pour the mixture down the baby's throat, with the baby lying on the mother's knee. Send the baby to the health centre or hospital as soon as possible.

Ask what was used to dress and cut the cord. If a dirty cutter and dressing were used, take the baby *at once* to the hospital. It cannot be treated at home.

(4) *The baby has a fit, goes still and cannot open his mouth.* This is probably tetanus. The baby should go to the hospital *at once*.

> **Remember!**
>
> ***If the baby must go to the hospital, the mother must also go to feed the baby. Breast-feeding should not stop.***

Discussions with the family

Each family is different. When you give them advice you must try to give it in a friendly way so that they are glad to accept and follow your suggestions.

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Bullets

Bullets draw attention to things that can be listed or grouped

Bullets are small round or square symbols that are used to draw attention to main ideas, steps in a procedure, and other things that can be listed or grouped in some way. They usually look like full stops [•] or tiny check boxes [□]. The summaries in this manual are an example of how to use bullets

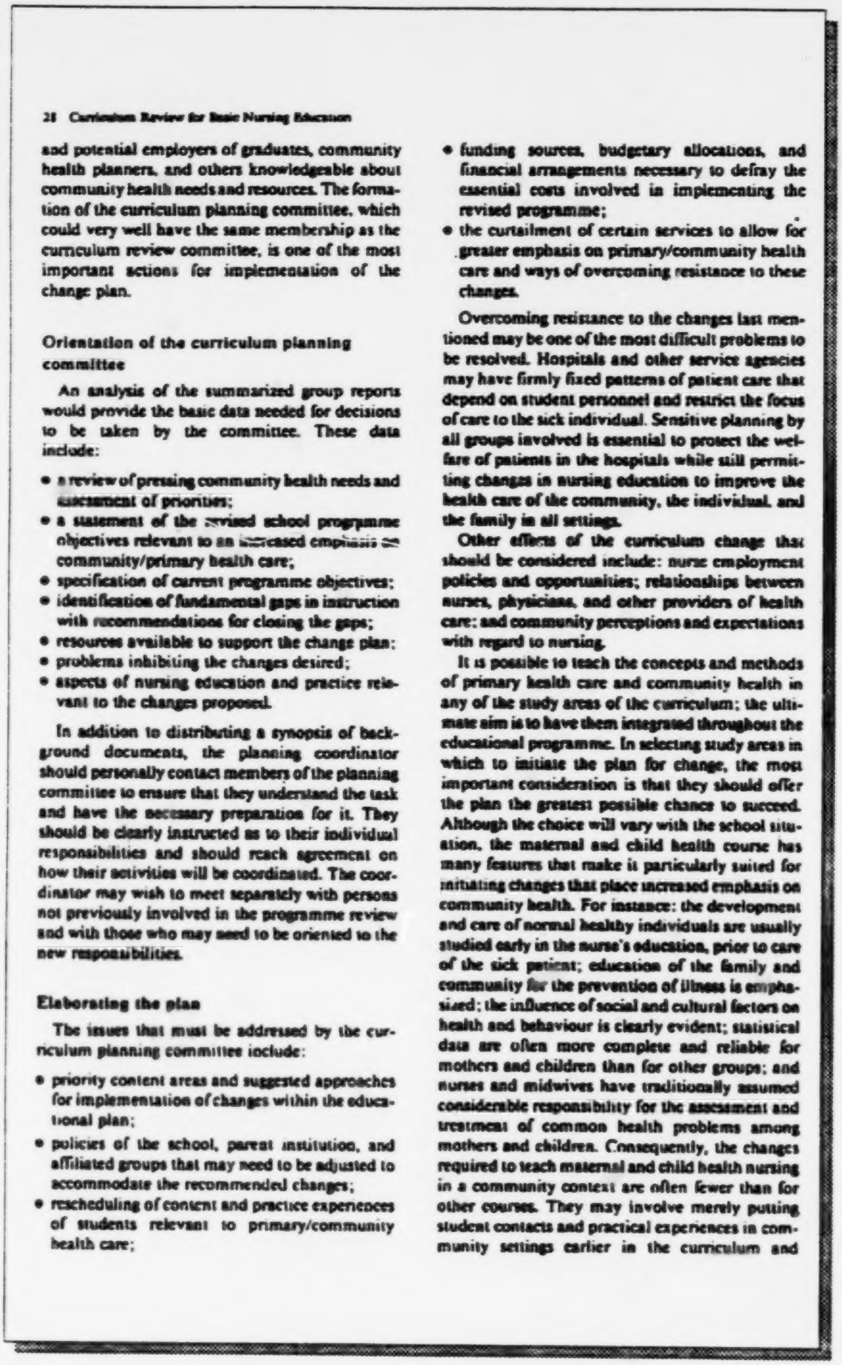
Look at Example 5 to the right which is taken from a lesson on evaluating nursing education. Be attentive to how you first read the page. Where do your eyes look first? Notice the use of bullets in the left hand column. There are two sets of bullets. The first set has seven bullets that draw attention to different kinds of data needed by a planning committee. Further down the column, a second set of bullets highlights five key issues that must be discussed by this same planning committee.

Compare the effect of the left column to the right column which has no bullets (ignoring the top two at the moment) and is primarily straight text. Which column is easiest to learn from? In addition, note the effect of different types of spacing used between the two sets of bullets. One set is more tightly spaced than the other.

Review Examples 6 - 10 to get ideas for different ways to use bullets. How are bullets used in each of the various examples? What are the different effects in each example? Is the highlighting we discussed earlier used as well in any of these examples?

For instance, Example 6 uses bullets to highlight programme goals. In this same example, notice the use of bold and italic highlighting. Bullets are employed in Example 7 to highlight a group of resource needs. Unlike the commonly used round type bullets, Examples 8 and 9 display square-shaped bullets and dashed lines to draw attention to a list of items. Notice that the bullets in Example 9 are slightly indented from the main text unlike the previous examples. Lastly, Example 10 uses bullets to point out a set of major questions that health workers should ask prior to programme planning. What other things do you notice in each of these examples? Where can bullets be useful in the educational materials you are now designing?

Example 5



28 Curriculum Review for Basic Nursing Education

and potential employers of graduates, community health planners, and others knowledgeable about community health needs and resources. The formation of the curriculum planning committee, which could very well have the same membership as the curriculum review committee, is one of the most important actions for implementation of the change plan.

Orientation of the curriculum planning committee

An analysis of the summarized group reports would provide the basic data needed for decisions to be taken by the committee. These data include:

- a review of pressing community health needs and assessment of priorities;
- a statement of the revised school programme objectives relevant to an increased emphasis on community/primary health care;
- specification of current programme objectives;
- identification of fundamental gaps in instruction with recommendations for closing the gaps;
- resources available to support the change plan;
- problems inhibiting the changes desired;
- aspects of nursing education and practice relevant to the changes proposed.

In addition to distributing a synopsis of background documents, the planning coordinator should personally contact members of the planning committee to ensure that they understand the task and have the necessary preparation for it. They should be clearly instructed as to their individual responsibilities and should reach agreement on how their activities will be coordinated. The coordinator may wish to meet separately with persons not previously involved in the programme review and with those who may need to be oriented to the new responsibilities.

Elaborating the plan

The issues that must be addressed by the curriculum planning committee include:

- priority content areas and suggested approaches for implementation of changes within the educational plan;
- policies of the school, parent institution, and affiliated groups that may need to be adjusted to accommodate the recommended changes;
- rescheduling of content and practice experiences of students relevant to primary/community health care;
- funding sources, budgetary allocations, and financial arrangements necessary to defray the essential costs involved in implementing the revised programme;
- the curtailment of certain services to allow for greater emphasis on primary/community health care and ways of overcoming resistance to these changes.

Overcoming resistance to the changes last mentioned may be one of the most difficult problems to be resolved. Hospitals and other service agencies may have firmly fixed patterns of patient care that depend on student personnel and restrict the focus of care to the sick individual. Sensitive planning by all groups involved is essential to protect the welfare of patients in the hospitals while still permitting changes in nursing education to improve the health care of the community, the individual, and the family in all settings.

Other effects of the curriculum change that should be considered include: nurse employment policies and opportunities; relationships between nurses, physicians, and other providers of health care; and community perceptions and expectations with regard to nursing.

It is possible to teach the concepts and methods of primary health care and community health in any of the study areas of the curriculum; the ultimate aim is to have them integrated throughout the educational programme. In selecting study areas in which to initiate the plan for change, the most important consideration is that they should offer the plan the greatest possible chance to succeed. Although the choice will vary with the school situation, the maternal and child health course has many features that make it particularly suited for initiating changes that place increased emphasis on community health. For instance: the development and care of normal healthy individuals are usually studied early in the nurse's education, prior to care of the sick patient; education of the family and community for the prevention of illness is emphasized; the influence of social and cultural factors on health and behaviour is clearly evident; statistical data are often more complete and reliable for mothers and children than for other groups; and nurses and midwives have traditionally assumed considerable responsibility for the assessment and treatment of common health problems among mothers and children. Consequently, the changes required to teach maternal and child health nursing in a community context are often fewer than for other courses. They may involve merely putting student contacts and practical experiences in community settings earlier in the curriculum and

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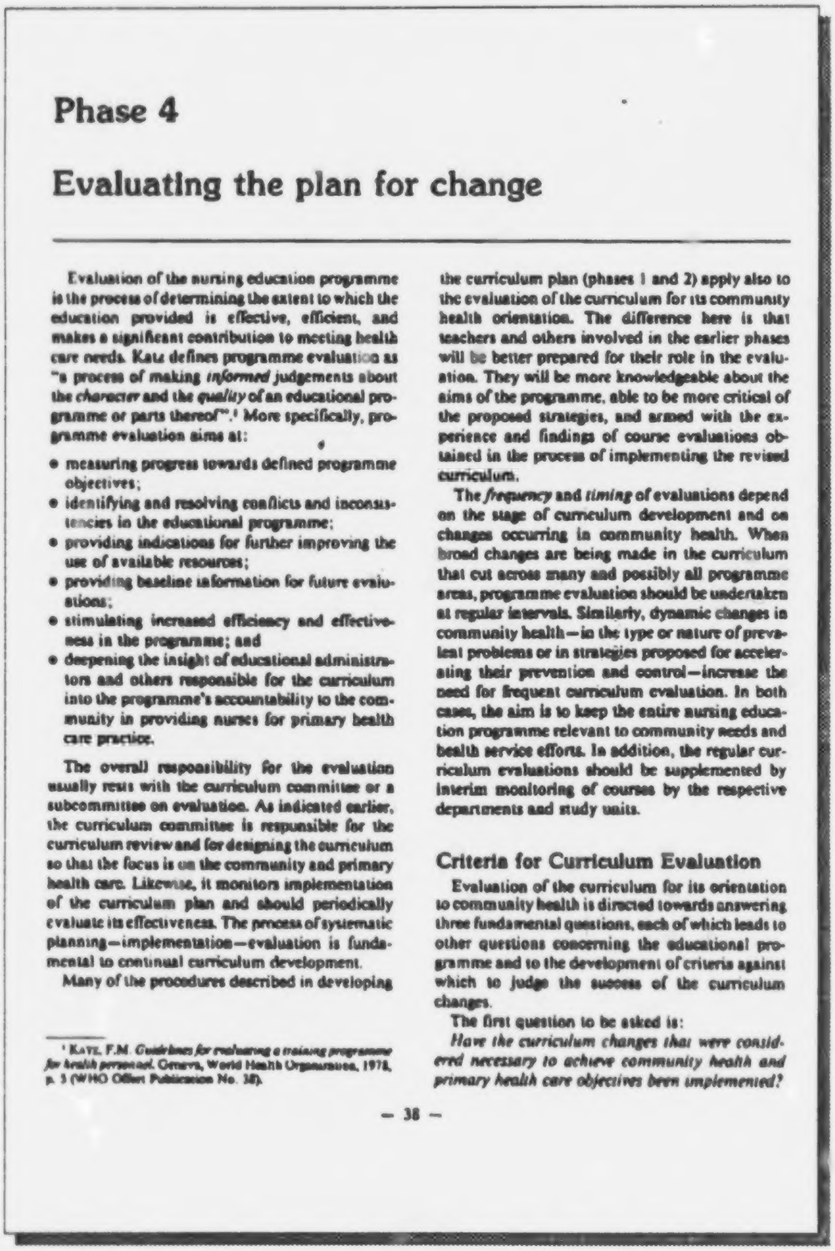
Example 6



Phase 4

Evaluating the plan for change

Evaluation of the nursing education programme is the process of determining the extent to which the education provided is effective, efficient, and makes a significant contribution to meeting health care needs. Katz defines programme evaluation as "a process of making *informed* judgements about the *character* and the *quality* of an educational programme or parts thereof".[1] More specifically, programme evaluation aims at:

- measuring progress towards defined programme objectives;
- identifying and resolving conflicts and inconsistencies in the educational programme;
- providing indications for further improving the use of available resources;
- providing baseline information for future evaluations;
- stimulating increased efficiency and effectiveness in the programme; and
- deepening the insight of educational administrators and others responsible for the curriculum into the programme's accountability to the community in providing nurses for primary health care practice.

The overall responsibility for the evaluation usually rests with the curriculum committee or a subcommittee on evaluation. As indicated earlier, the curriculum committee is responsible for the curriculum review and for designing the curriculum so that the focus is on the community and primary health care. Likewise, it monitors implementation of the curriculum plan and should periodically evaluate its effectiveness. The process of systematic planning—implementation—evaluation is fundamental to continual curriculum development.

Many of the procedures described in developing the curriculum plan (phases 1 and 2) apply also to the evaluation of the curriculum for its community health orientation. The difference here is that teachers and others involved in the earlier phases will be better prepared for their role in the evaluation. They will be more knowledgeable about the aims of the programme, able to be more critical of the proposed strategies, and armed with the experience and findings of course evaluations obtained in the process of implementing the revised curriculum.

The *frequency* and *timing* of evaluations depend on the stage of curriculum development and on changes occurring in community health. When broad changes are being made in the curriculum that cut across many and possibly all programme areas, programme evaluation should be undertaken at regular intervals. Similarly, dynamic changes in community health—in the type or nature of prevalent problems or in strategies proposed for accelerating their prevention and control—increase the need for frequent curriculum evaluation. In both cases, the aim is to keep the entire nursing education programme relevant to community needs and health service efforts. In addition, the regular curriculum evaluations should be supplemented by interim monitoring of courses by the respective departments and study units.

Criteria for Curriculum Evaluation

Evaluation of the curriculum for its orientation to community health is directed towards answering three fundamental questions, each of which leads to other questions concerning the educational programme and to the development of criteria against which to judge the success of the curriculum changes.

The first question to be asked is:

Have the curriculum changes that were considered necessary to achieve community health and primary health care objectives been implemented?

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[1] KATZ, F.M. *Guidelines for evaluating a training programme for health personnel.* Geneva, World Health Organization, 1978, p. 5 (WHO Offset Publication No. 38).

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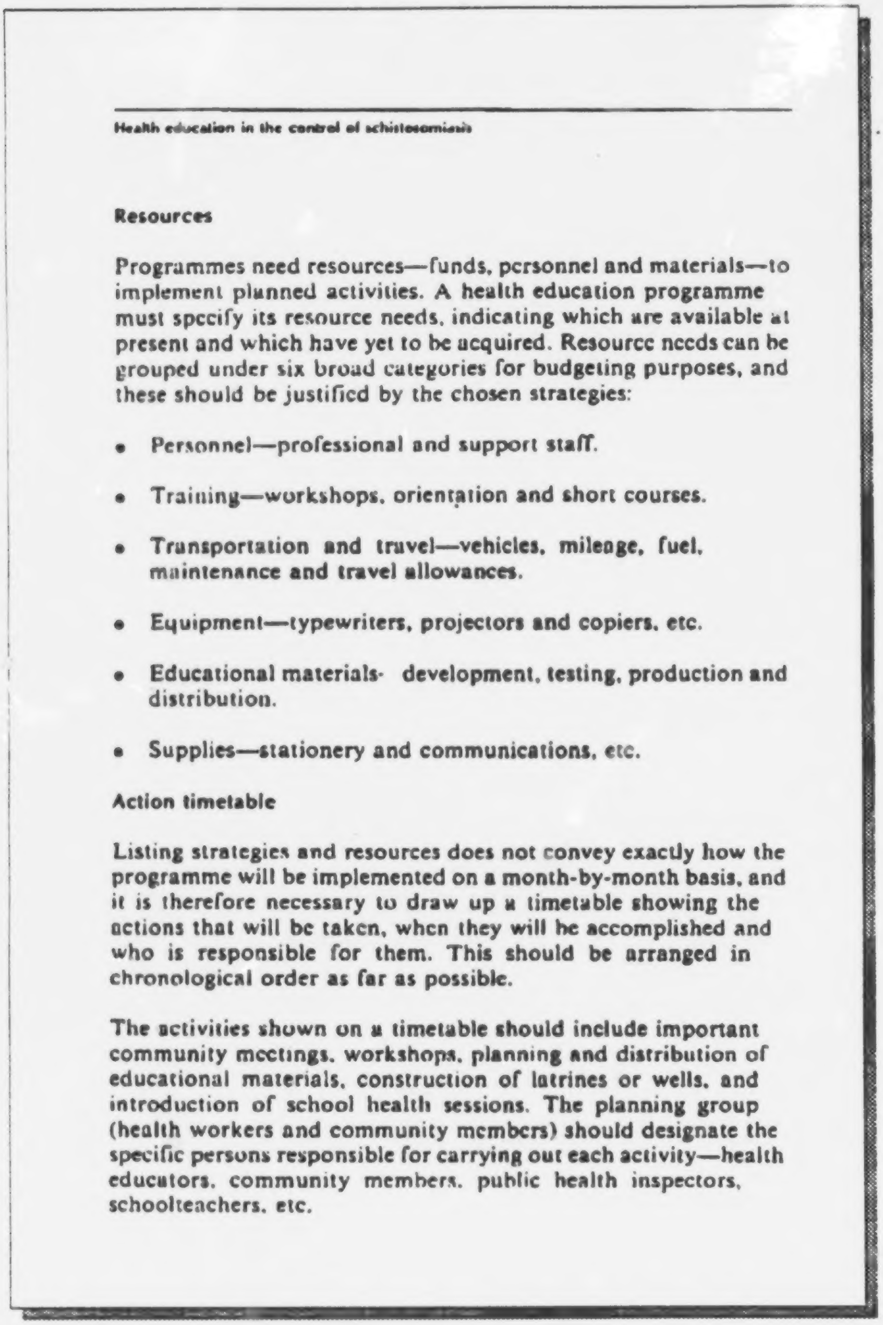
Example 7



Health education in the control of schistosomiasis

Resources

Programmes need resources—funds, personnel and materials—to implement planned activities. A health education programme must specify its resource needs, indicating which are available at present and which have yet to be acquired. Resource needs can be grouped under six broad categories for budgeting purposes, and these should be justified by the chosen strategies:

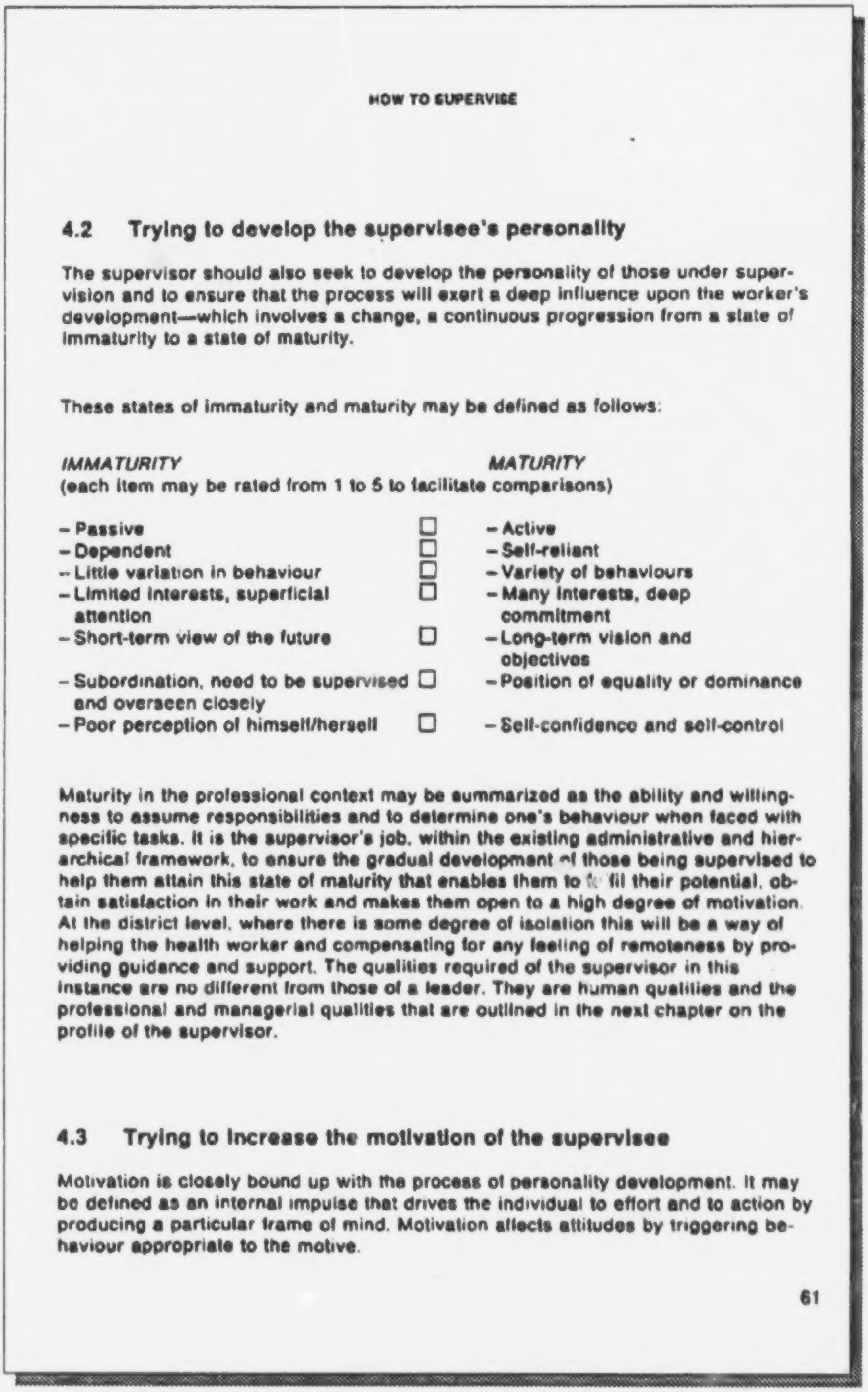
- Personnel—professional and support staff.
- Training—workshops, orientation and short courses.
- Transportation and travel—vehicles, mileage, fuel, maintenance and travel allowances.
- Equipment—typewriters, projectors and copiers, etc.
- Educational materials- development, testing, production and distribution.
- Supplies—stationery and communications, etc.

Action timetable

Listing strategies and resources does not convey exactly how the programme will be implemented on a month-by-month basis, and it is therefore necessary to draw up a timetable showing the actions that will be taken, when they will be accomplished and who is responsible for them. This should be arranged in chronological order as far as possible.

The activities shown on a timetable should include important community meetings, workshops, planning and distribution of educational materials, construction of latrines or wells, and introduction of school health sessions. The planning group (health workers and community members) should designate the specific persons responsible for carrying out each activity—health educators, community members, public health inspectors, schoolteachers, etc.

Example 8



HOW TO SUPERVISE

4.2 Trying to develop the supervisee's personality

The supervisor should also seek to develop the personality of those under supervision and to ensure that the process will exert a deep influence upon the worker's development—which involves a change, a continuous progression from a state of immaturity to a state of maturity.

These states of immaturity and maturity may be defined as follows:

IMMATURITY		*MATURITY*
(each item may be rated from 1 to 5 to facilitate comparisons)		
– Passive	☐	– Active
– Dependent	☐	– Self-reliant
– Little variation in behaviour	☐	– Variety of behaviours
– Limited interests, superficial attention	☐	– Many interests, deep commitment
– Short-term view of the future	☐	– Long-term vision and objectives
– Subordination, need to be supervised and overseen closely	☐	– Position of equality or dominance
– Poor perception of himself/herself	☐	– Self-confidence and self-control

Maturity in the professional context may be summarized as the ability and willingness to assume responsibilities and to determine one's behaviour when faced with specific tasks. It is the supervisor's job, within the existing administrative and hierarchical framework, to ensure the gradual development of those being supervised to help them attain this state of maturity that enables them to fulfil their potential, obtain satisfaction in their work and makes them open to a high degree of motivation. At the district level, where there is some degree of isolation this will be a way of helping the health worker and compensating for any feeling of remoteness by providing guidance and support. The qualities required of the supervisor in this instance are no different from those of a leader. They are human qualities and the professional and managerial qualities that are outlined in the next chapter on the profile of the supervisor.

4.3 Trying to increase the motivation of the supervisee

Motivation is closely bound up with the process of personality development. It may be defined as an internal impulse that drives the individual to effort and to action by producing a particular frame of mind. Motivation affects attitudes by triggering behaviour appropriate to the motive.

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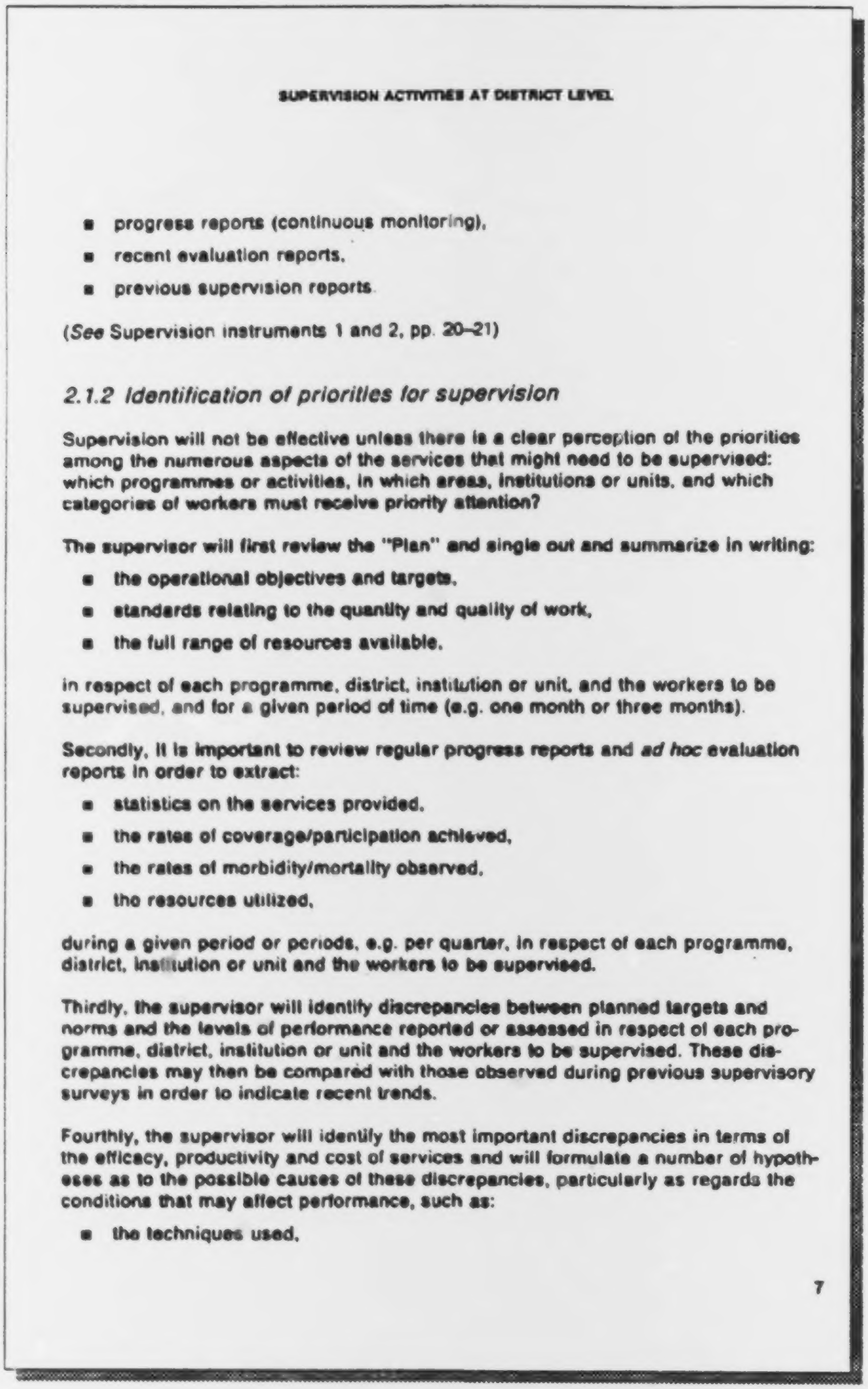
Example 9



SUPERVISION ACTIVITIES AT DISTRICT LEVEL

- progress reports (continuous monitoring),
- recent evaluation reports,
- previous supervision reports.

(*See* Supervision instruments 1 and 2, pp. 20–21)

2.1.2 Identification of priorities for supervision

Supervision will not be effective unless there is a clear perception of the priorities among the numerous aspects of the services that might need to be supervised: which programmes or activities, in which areas, institutions or units, and which categories of workers must receive priority attention?

The supervisor will first review the "Plan" and single out and summarize in writing:

- the operational objectives and targets,
- standards relating to the quantity and quality of work,
- the full range of resources available,

in respect of each programme, district, institution or unit, and the workers to be supervised, and for a given period of time (e.g. one month or three months).

Secondly, it is important to review regular progress reports and *ad hoc* evaluation reports in order to extract:

- statistics on the services provided,
- the rates of coverage/participation achieved,
- the rates of morbidity/mortality observed,
- the resources utilized,

during a given period or periods, e.g. per quarter, in respect of each programme, district, institution or unit and the workers to be supervised.

Thirdly, the supervisor will identify discrepancies between planned targets and norms and the levels of performance reported or assessed in respect of each programme, district, institution or unit and the workers to be supervised. These discrepancies may then be compared with those observed during previous supervisory surveys in order to indicate recent trends.

Fourthly, the supervisor will identify the most important discrepancies in terms of the efficacy, productivity and cost of services and will formulate a number of hypotheses as to the possible causes of these discrepancies, particularly as regards the conditions that may affect performance, such as:

- the techniques used,

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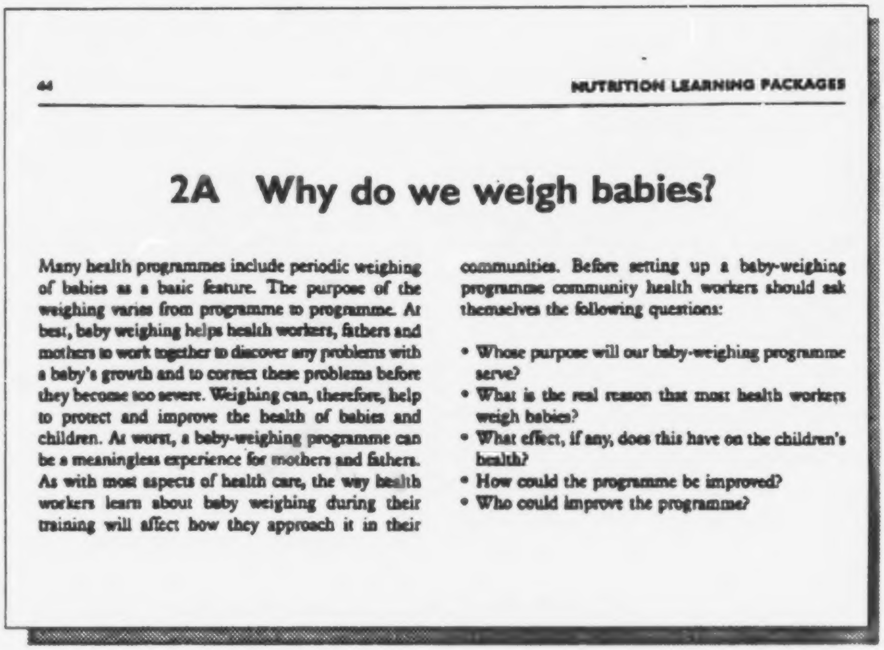
Example 10



44 NUTRITION LEARNING PACKAGES

2A Why do we weigh babies?

Many health programmes include periodic weighing of babies as a basic feature. The purpose of the weighing varies from programme to programme. At best, baby weighing helps health workers, fathers and mothers to work together to discover any problems with a baby's growth and to correct these problems before they become too severe. Weighing can, therefore, help to protect and improve the health of babies and children. At worst, a baby-weighing programme can be a meaningless experience for mothers and fathers. As with most aspects of health care, the way health workers learn about baby weighing during their training will affect how they approach it in their communities. Before setting up a baby-weighing programme community health workers should ask themselves the following questions:

- Whose purpose will our baby-weighing programme serve?
- What is the real reason that most health workers weigh babies?
- What effect, if any, does this have on the children's health?
- How could the programme be improved?
- Who could improve the programme?

In our discussion, the six previous examples show you various ways to use bullets. Bullets can be used to draw attention to main ideas, goals, features or qualities, resource needs, and questions, just to name a few. What other ways could bullets be used? You noticed that bullets can be round or square in shape and indented or evenly aligned with the margins of the main text. How and where can you incorporate bullets into the design of your educational materials?

Boxes

Another type of visual signal is a box. Boxes are borders drawn around important words or phrases in order to quickly draw attention to them. They can be useful in drawing attention to important statements you don't want the reader to overlook. For instance, try using boxes around summaries, warnings, procedural steps, main ideas and things that need to be re-emphasized.

Boxes draw attention to important things that should not be overlooked

Look at Examples 11 - 15 on the following pages to see different ways in which boxes are used. How are boxes used in each example? What effects do the boxes have? As you read the examples, ask yourself where these ideas might fit into materials you are currently designing.

Also, consider using boxes to present main ideas or steps in a procedure. Example 16 uses boxes to show the organizational structure of a health system. Note how the boxes in this example do two things. First, they highlight the main parts of the system and, secondly, they show the relationship of each part to the whole system. Is a picture not worth a thousand words? Imagine the effect of taking this and changing it all to straight text.

Boxes can highlight main ideas

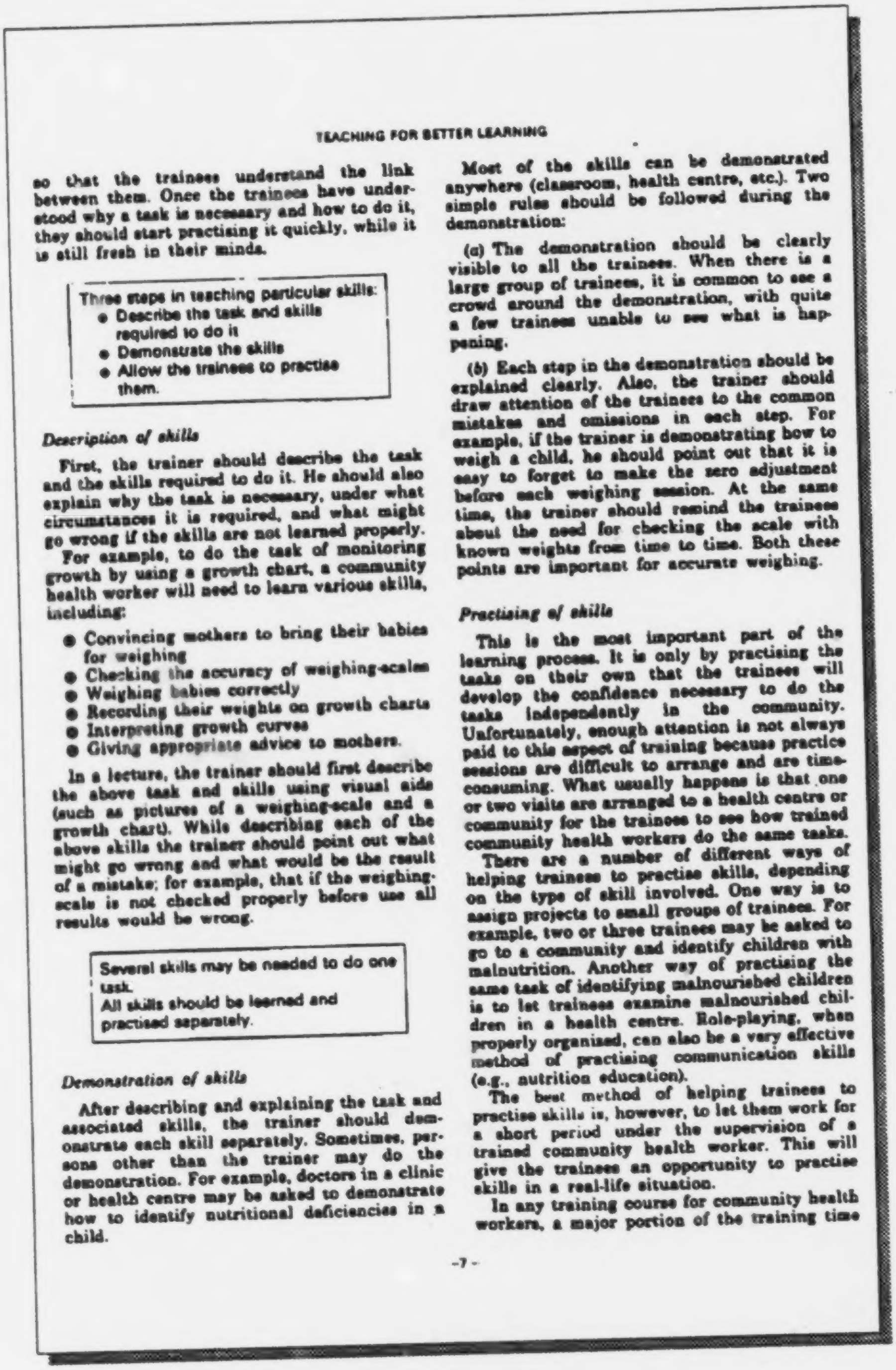
Boxes can show relationships

Similarly, Example 17 uses boxes to highlight the main steps in a procedure for treating dehydration. Some of the boxes pose a procedural question and other boxes outline the treatment. Also, note the consistency in the size of the boxes. The three boxes on the left side which indicate "no" reponses are all the same size. The two larger boxes on the right which indicate "yes" responses are also the same size. As we said before, consistency with a strategy makes things clearer and easier to understand. What would be the effect of trying to explain this same procedure in several paragraphs of text?

Boxes can outline the order of procedures

Remember, care should be taken not to overuse boxes. Overuse and lack of consistency of any strategy can confuse readers.

Example 11



TEACHING FOR BETTER LEARNING

so that the trainees understand the link between them. Once the trainees have understood why a task is necessary and how to do it, they should start practising it quickly, while it is still fresh in their minds.

Three steps in teaching particular skills:
- Describe the task and skills required to do it
- Demonstrate the skills
- Allow the trainees to practise them.

Description of skills

First, the trainer should describe the task and the skills required to do it. He should also explain why the task is necessary, under what circumstances it is required, and what might go wrong if the skills are not learned properly.

For example, to do the task of monitoring growth by using a growth chart, a community health worker will need to learn various skills, including:

- Convincing mothers to bring their babies for weighing
- Checking the accuracy of weighing-scales
- Weighing babies correctly
- Recording their weights on growth charts
- Interpreting growth curves
- Giving appropriate advice to mothers.

In a lecture, the trainer should first describe the above task and skills using visual aids (such as pictures of a weighing-scale and a growth chart). While describing each of the above skills the trainer should point out what might go wrong and what would be the result of a mistake; for example, that if the weighing-scale is not checked properly before use all results would be wrong.

Several skills may be needed to do one task.
All skills should be learned and practised separately.

Demonstration of skills

After describing and explaining the task and associated skills, the trainer should demonstrate each skill separately. Sometimes, persons other than the trainer may do the demonstration. For example, doctors in a clinic or health centre may be asked to demonstrate how to identify nutritional deficiencies in a child.

Most of the skills can be demonstrated anywhere (classroom, health centre, etc.). Two simple rules should be followed during the demonstration:

(*a*) The demonstration should be clearly visible to all the trainees. When there is a large group of trainees, it is common to see a crowd around the demonstration, with quite a few trainees unable to see what is happening.

(*b*) Each step in the demonstration should be explained clearly. Also, the trainer should draw attention of the trainees to the common mistakes and omissions in each step. For example, if the trainer is demonstrating how to weigh a child, he should point out that it is easy to forget to make the zero adjustment before each weighing session. At the same time, the trainer should remind the trainees about the need for checking the scale with known weights from time to time. Both these points are important for accurate weighing.

Practising of skills

This is the most important part of the learning process. It is only by practising the tasks on their own that the trainees will develop the confidence necessary to do the tasks independently in the community. Unfortunately, enough attention is not always paid to this aspect of training because practice sessions are difficult to arrange and are time-consuming. What usually happens is that one or two visits are arranged to a health centre or community for the trainees to see how trained community health workers do the same tasks.

There are a number of different ways of helping trainees to practise skills, depending on the type of skill involved. One way is to assign projects to small groups of trainees. For example, two or three trainees may be asked to go to a community and identify children with malnutrition. Another way of practising the same task of identifying malnourished children is to let trainees examine malnourished children in a health centre. Role-playing, when properly organized, can also be a very effective method of practising communication skills (e.g., nutrition education).

The best method of helping trainees to practise skills is, however, to let them work for a short period under the supervision of a trained community health worker. This will give the trainees an opportunity to practise skills in a real-life situation.

In any training course for community health workers, a major portion of the training time

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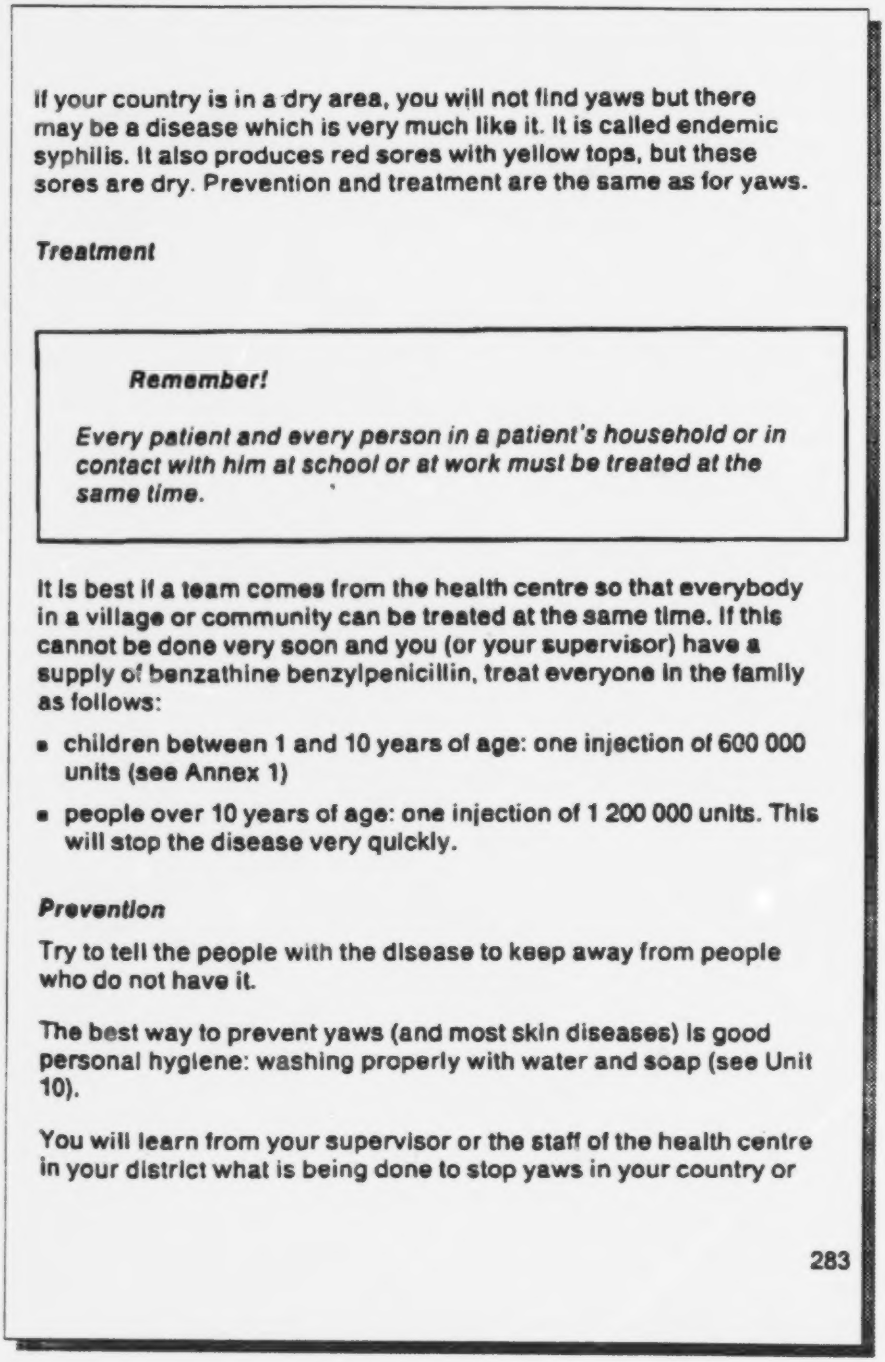
Example 12



If your country is in a dry area, you will not find yaws but there may be a disease which is very much like it. It is called endemic syphilis. It also produces red sores with yellow tops, but these sores are dry. Prevention and treatment are the same as for yaws.

Treatment

> ***Remember!***
>
> *Every patient and every person in a patient's household or in contact with him at school or at work must be treated at the same time.*

It is best if a team comes from the health centre so that everybody in a village or community can be treated at the same time. If this cannot be done very soon and you (or your supervisor) have a supply of benzathine benzylpenicillin, treat everyone in the family as follows:

- children between 1 and 10 years of age: one injection of 600 000 units (see Annex 1)
- people over 10 years of age: one injection of 1 200 000 units. This will stop the disease very quickly.

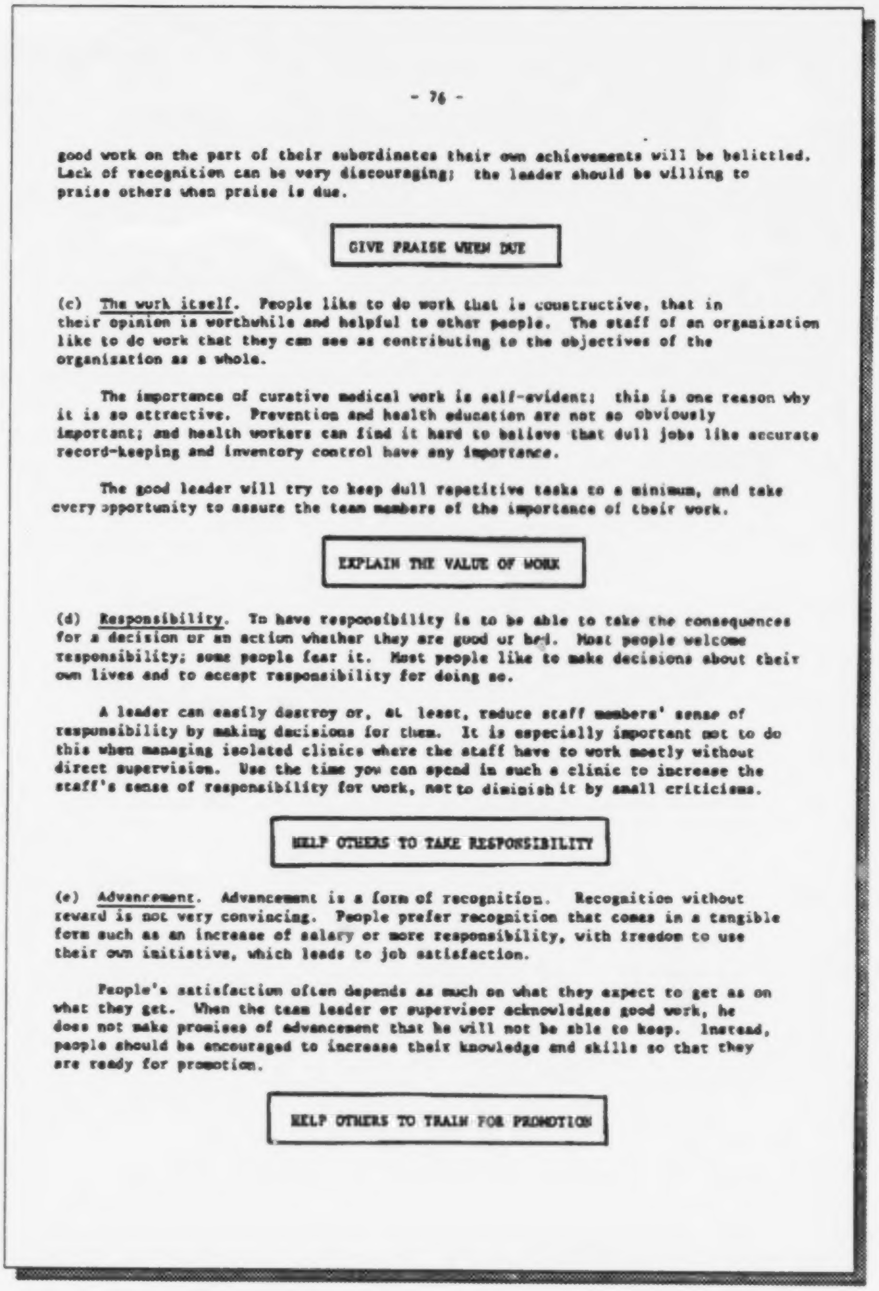
Prevention

Try to tell the people with the disease to keep away from people who do not have it.

The best way to prevent yaws (and most skin diseases) is good personal hygiene: washing properly with water and soap (see Unit 10).

You will learn from your supervisor or the staff of the health centre in your district what is being done to stop yaws in your country or

Example 13



good work on the part of their subordinates their own achievements will be belittled. Lack of recognition can be very discouraging; the leader should be willing to praise others when praise is due.

GIVE PRAISE WHEN DUE

(c) The work itself. People like to do work that is constructive, that in their opinion is worthwhile and helpful to other people. The staff of an organization like to do work that they can see as contributing to the objectives of the organization as a whole.

The importance of curative medical work is self-evident; this is one reason why it is so attractive. Prevention and health education are not so obviously important; and health workers can find it hard to believe that dull jobs like accurate record-keeping and inventory control have any importance.

The good leader will try to keep dull repetitive tasks to a minimum, and take every opportunity to assure the team members of the importance of their work.

EXPLAIN THE VALUE OF WORK

(d) Responsibility. To have responsibility is to be able to take the consequences for a decision or an action whether they are good or bad. Most people welcome responsibility; some people fear it. Most people like to make decisions about their own lives and to accept responsibility for doing so.

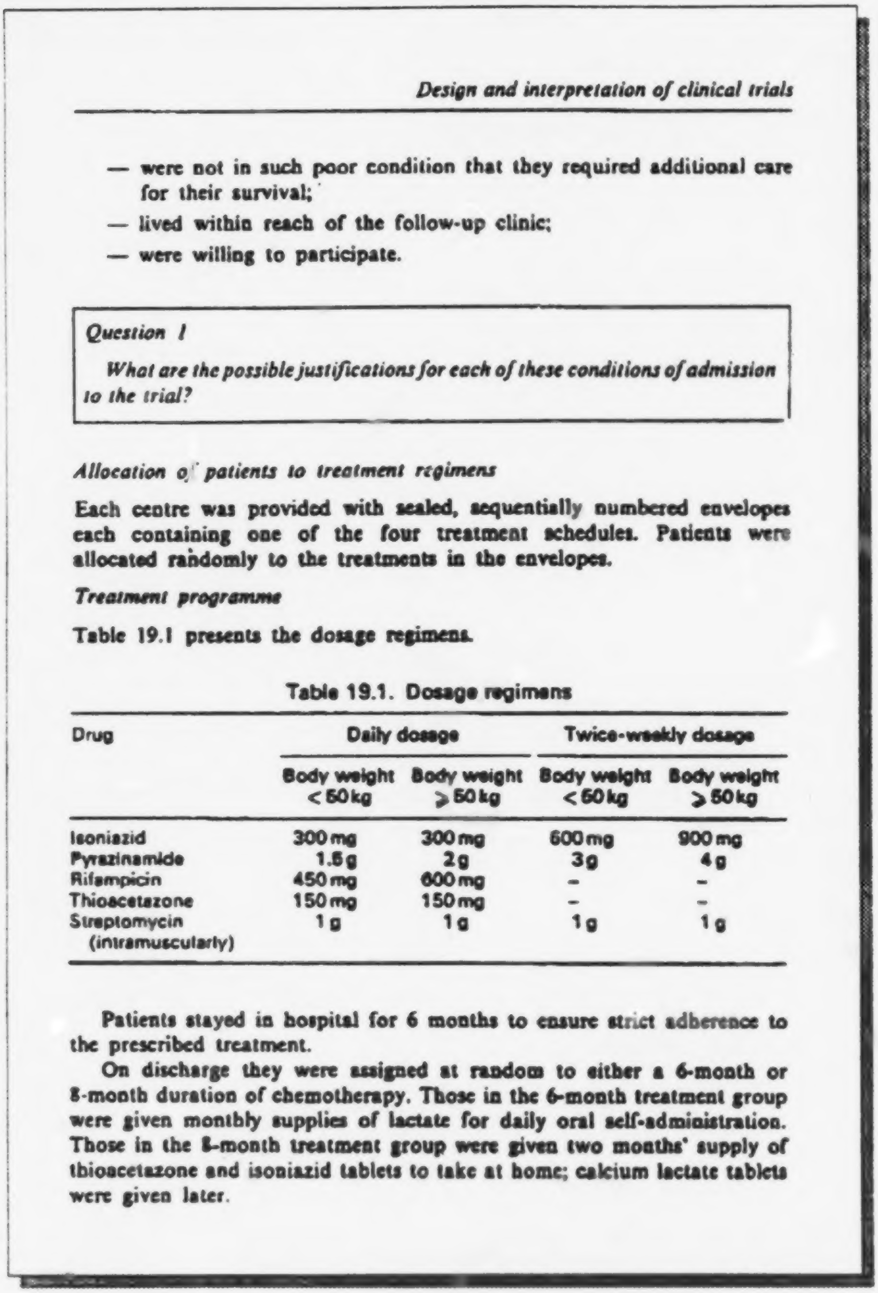
A leader can easily destroy or, at least, reduce staff members' sense of responsibility by making decisions for them. It is especially important not to do this when managing isolated clinics where the staff have to work mostly without direct supervision. Use the time you can spend in such a clinic to increase the staff's sense of responsibility for work, not to diminish it by small criticisms.

HELP OTHERS TO TAKE RESPONSIBILITY

(e) Advancement. Advancement is a form of recognition. Recognition without reward is not very convincing. People prefer recognition that comes in a tangible form such as an increase of salary or more responsibility, with freedom to use their own initiative, which leads to job satisfaction.

People's satisfaction often depends as much on what they expect to get as on what they get. When the team leader or supervisor acknowledges good work, he does not make promises of advancement that he will not be able to keep. Instead, people should be encouraged to increase their knowledge and skills so that they are ready for promotion.

HELP OTHERS TO TRAIN FOR PROMOTION



— were not in such poor condition that they required additional care for their survival;

— lived within reach of the follow-up clinic;

— were willing to participate.

Question 1

What are the possible justifications for each of these conditions of admission to the trial?

Allocation of patients to treatment regimens

Each centre was provided with sealed, sequentially numbered envelopes each containing one of the four treatment schedules. Patients were allocated randomly to the treatments in the envelopes.

Treatment programme

Table 19.1 presents the dosage regimens.

Table 19.1. Dosage regimens

Drug	Daily dosage		Twice-weekly dosage	
	Body weight < 50 kg	Body weight ≥ 50 kg	Body weight < 50 kg	Body weight ≥ 50 kg
Isoniazid	300 mg	300 mg	600 mg	900 mg
Pyrazinamide	1.5 g	2 g	3 g	4 g
Rifampicin	450 mg	600 mg	–	–
Thioacetazone	150 mg	150 mg	–	–
Streptomycin (intramuscularly)	1 g	1 g	1 g	1 g

Patients stayed in hospital for 6 months to ensure strict adherence to the prescribed treatment.

On discharge they were assigned at random to either a 6-month or 8-month duration of chemotherapy. Those in the 6-month treatment group were given monthly supplies of lactate for daily oral self-administration. Those in the 8-month treatment group were given two months' supply of thioacetazone and isoniazid tablets to take at home; calcium lactate tablets were given later.

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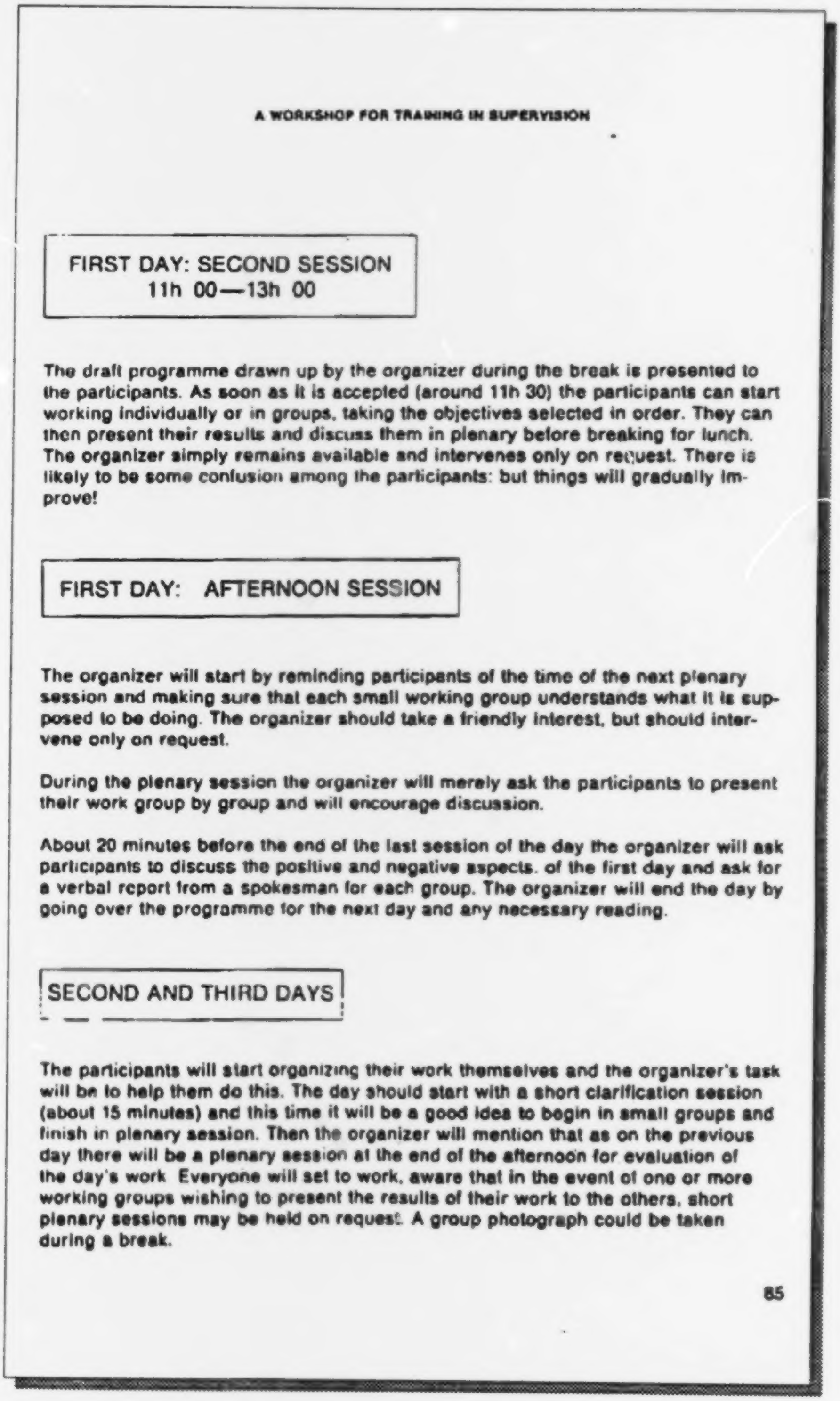
Example 15



A WORKSHOP FOR TRAINING IN SUPERVISION

FIRST DAY: SECOND SESSION
11h 00—13h 00

The draft programme drawn up by the organizer during the break is presented to the participants. As soon as it is accepted (around 11h 30) the participants can start working individually or in groups, taking the objectives selected in order. They can then present their results and discuss them in plenary before breaking for lunch. The organizer simply remains available and intervenes only on request. There is likely to be some confusion among the participants: but things will gradually improve!

FIRST DAY: AFTERNOON SESSION

The organizer will start by reminding participants of the time of the next plenary session and making sure that each small working group understands what it is supposed to be doing. The organizer should take a friendly interest, but should intervene only on request.

During the plenary session the organizer will merely ask the participants to present their work group by group and will encourage discussion.

About 20 minutes before the end of the last session of the day the organizer will ask participants to discuss the positive and negative aspects. of the first day and ask for a verbal report from a spokesman for each group. The organizer will end the day by going over the programme for the next day and any necessary reading.

SECOND AND THIRD DAYS

The participants will start organizing their work themselves and the organizer's task will be to help them do this. The day should start with a short clarification session (about 15 minutes) and this time it will be a good idea to begin in small groups and finish in plenary session. Then the organizer will mention that as on the previous day there will be a plenary session at the end of the afternoon for evaluation of the day's work Everyone will set to work, aware that in the event of one or more working groups wishing to present the results of their work to the others, short plenary sessions may be held on request. A group photograph could be taken during a break.

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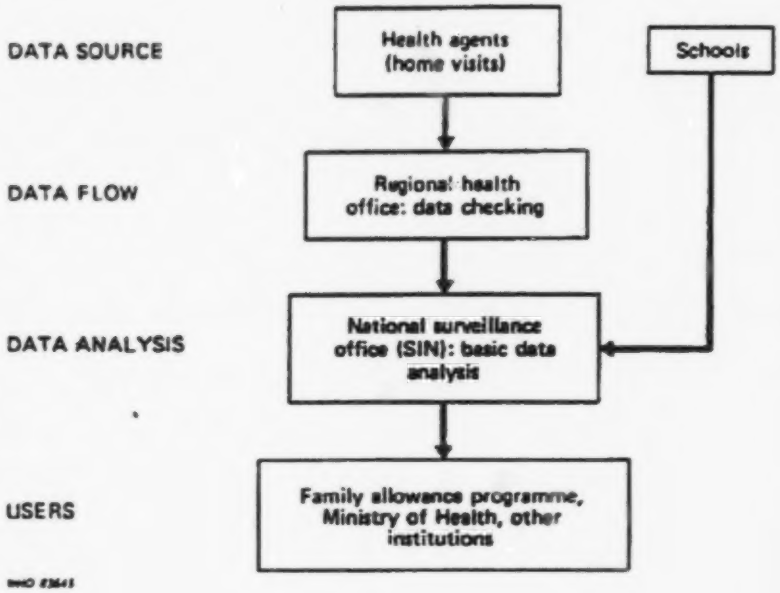
Example 16

Fig. 3.2. Organizational structure of the surveillance system (SIN) of Costa Rica

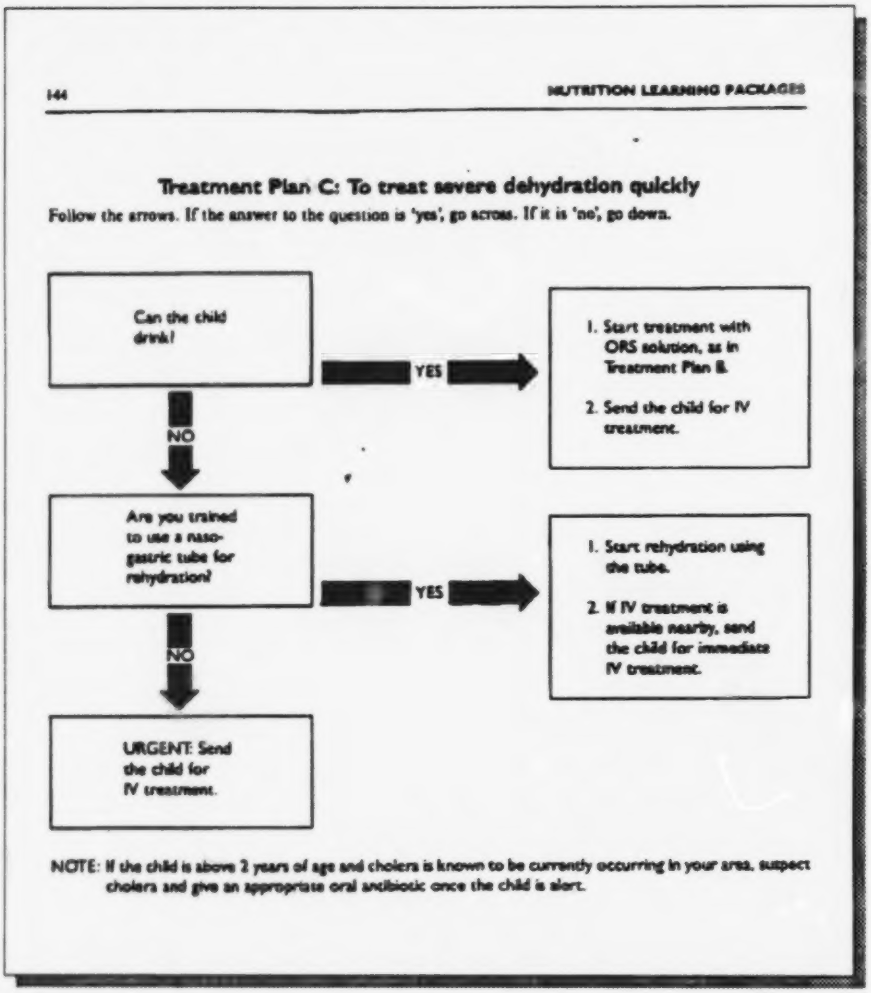

DATA SOURCE
Health agents (home visits)
Schools
DATA FLOW
Regional health office: data checking
DATA ANALYSIS
National surveillance office (SIN): basic data analysis
USERS
Family allowance programme, Ministry of Health, other institutions

WHO 83641

other hand, health data go up through area health offices. The revision of forms, and the punching, processing, and analyses are conducted centrally by SIN. Computer facilities are available to SIN from the University of Costa Rica and from the Ministry of Finance, the latter facilities being more frequently used. The censuses and the periodic surveys on employment are analysed and reported by the Bureau of Statistics and Censuses and the Ministry of Labor and Social Security, respectively; SIN then incorporates the relevant data into its own reports as needed. The central unit of the SIN employs some 20–30 professionals, with backgrounds in economics, statistics, engineering, data processing, etc.

Data for nutritional surveillance can be derived from sample surveys of households. These data may be obtained by including a nutrition module within a survey system that is already in operation for other purposes; many aspects of the survey organization may thus be taken care of. The inputs for nutritional information involve equipment, training, supervision, data checking, and analysis and interpretation. The organization of these services in Kenya,

Example 17



144 NUTRITION LEARNING PACKAGES

Treatment Plan C: To treat severe dehydration quickly

Follow the arrows. If the answer to the question is 'yes', go across. If it is 'no', go down.

Can the child drink?

1. Start treatment with ORS solution, as in Treatment Plan B.
2. Send the child for IV treatment.

Are you trained to use a naso-gastric tube for rehydration?

1. Start rehydration using the tube.
2. If IV treatment is available nearby, send the child for immediate IV treatment.

URGENT: Send the child for IV treatment.

NOTE: If the child is above 2 years of age and cholera is known to be currently occurring in your area, suspect cholera and give an appropriate oral antibiotic once the child is alert.

In concluding, these examples show different ways in which to use boxes. Boxes can be used around main ideas, steps in a procedure, warning or remember statements, questions, and sessions. In addition, boxes can be useful in highlighting the various parts of something and the relationship of those parts to one another. At times you may find that using boxes to explain a procedure is easier than generating several paragraphs of wordy text. What other ways could boxes be used that we have not mentioned? Where can you incorporate boxes into materials you are currently designing?

Shading

Shading emphasizes what is important

Shading key areas or use of different colours is another design strategy which can be useful to focus attention on important areas. Shading is the marking of something with tints of colour. For instance, look at Example 18 on the next page which uses shading within a box to highlight an important point that the author does not want readers to miss. As you read the page, be attentive to what you look at first and then second. Also, in that same example notice the use of bullets and italic print.

Use different coloured paper to mark sections

In Example 18, shading is used on a small portion of the page. Another use of shading is to shade the entire page. How about using different coloured pages for various sections within your materials? For instance, let us say that the educational materials you have just designed has two sections. There is the main body of information and a separate section of practice excercises. You could consider printing the main body of information on regular white paper and the practice exercises on a different colour of paper. This makes sections distinct from each one another which makes finding and accessing information easier. What other ways could you use shading in the design of educational materials?

Review the previous examples on boxes. What effect would the boxes in Examples 11 - 17 have if they were shaded? Are there some you would shade and others you would not?

Example 18

MODULE 6: MANAGEMENT AND PREVENTION OF NUTRITIONAL DEFICIENCIES

The selection of children in the community who really need such supplementary food should be done in consultation with supervisors and community leaders. Mothers should understand that the needs of a malnourished child are urgent, and that the supplementary food should not be shared with the whole family.

The help of the community may be required in the case of malnourished children of very poor families. The community health worker and the health supervisors may be able to persuade community leaders and wealthy farmers to help. These people may provide food for specific children or families in need of urgent help. In the end, better nutrition of the whole community will depend on education and on social and economic development, but there are many useful things a community health worker can do immediately. .

Some children needing special care should be referred to the supervisor or health centre.

Some children need very special care because their lives are in great danger. These children should be referred to the supervisor or the health centre. However, they will still need the support and help of the community health worker. The children who need to be referred to the supervisor or the health centre are described below:

- *Children with severe malnutrition.* These include very wasted marasmic or greatly swollen kwashiorkor children who will not eat.

- *Children with complications of malnutrition.* These include children with anaemia and eye damage due to vitamin A deficiency (see sections on vitamin A deficiency and anaemia below), and children with signs of infections, high fever, distressed breathing, and repeated diarrhoea.

- *Children with moderate malnutrition who do not improve with the feeding and help suggested below.* These are children who have some infection which is difficult to diagnose, e.g., tuberculosis. Refer these children to the supervisor or to the health centres.

Spacing

Spacing separates and groups information

Lastly, designing text with ample spacing can be useful in drawing the reader's attention to areas. Spaces create *breaks* in information that cause readers to pause in their reading. So spaces are good for separating and grouping information. One way to think of them is as "invisible" borders or boxes around information.

Look at Example 19 on the next page which is primarily straight text designed with traditional spacing. Compare this page to Example 20 which revises the spacing. What is the effect of the additonal spacing? If you were expected to learn something from either of these two pages, which one would you prefer to read?

Notice that the additional spaces in Example 20 are:
- placed between paragraphs
- main ideas are indented, and
- margin call-outs create a left-sided column.

Spacing is used to distinguish three major ideas at the top of the page and three categories of information along the left margin. Here, the extra spacing makes reading the information easier and more enjoyable.

Spacing makes reading easier

In your educational materials consider using space as an "invisible rest stop" which can meaningfully divide or group information. Allow for ample spacing and avoid designing information too tightly.

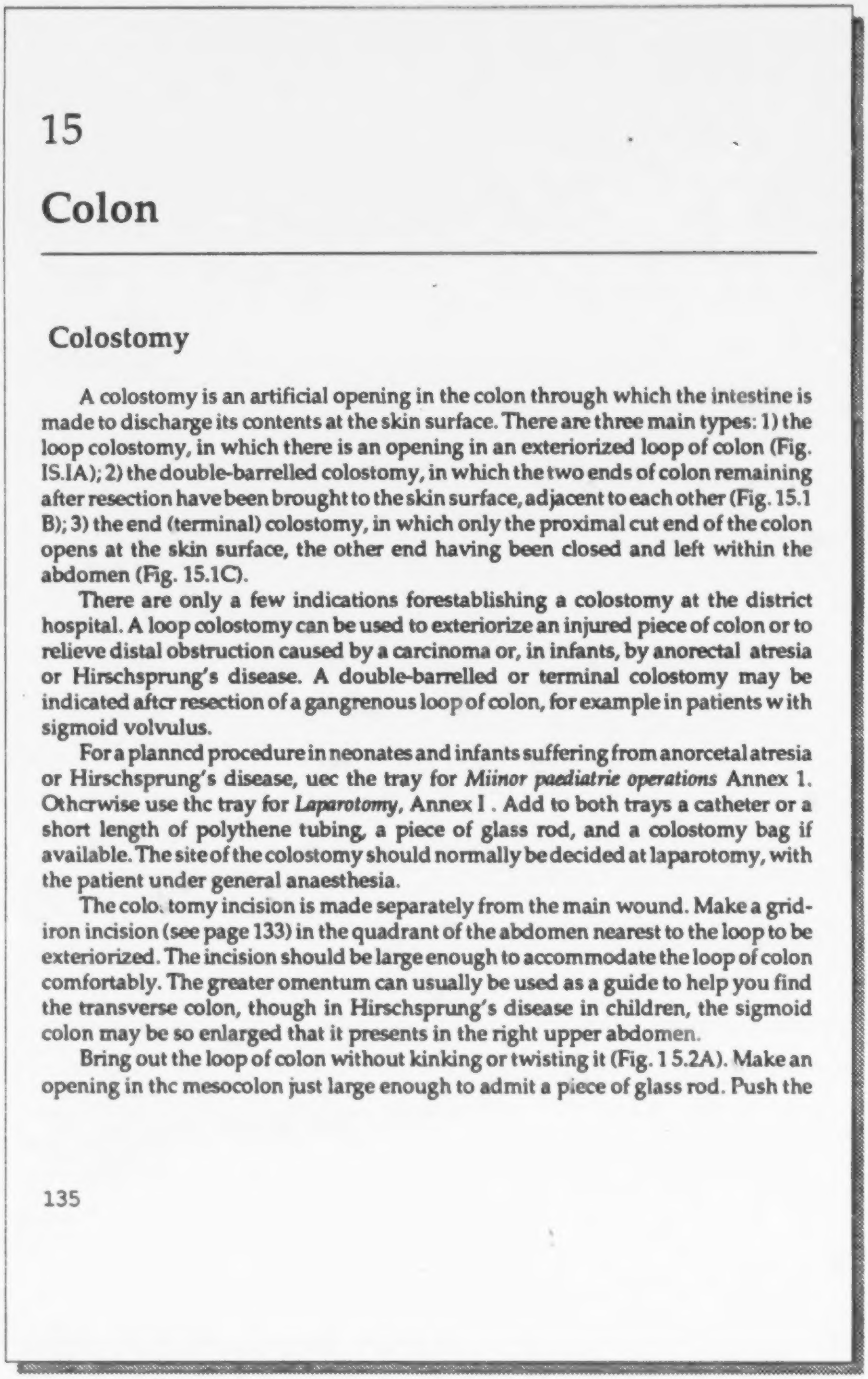
Avoid tight designs

To create adequate spacing in your designs consider:
- two directions: up & down, and left to right
- writing short paragraphs
- double spacing between paragraphs
- centering lists or groups of things
- indenting main ideas
- listing procedural steps instead of writing many long sentences
- using wider margins, and
- different size printing for titles and headings.

Remember, the key to good spacing is being *consistent*. Irregular use of spacing can confuse and frustrate learners.

Use spacing consistently

Example 19



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Colon

Colostomy

A colostomy is an artificial opening in the colon through which the intestine is made to discharge its contents at the skin surface. There are three main types: 1) the loop colostomy, in which there is an opening in an exteriorized loop of colon (Fig. IS.IA); 2) the double-barrelled colostomy, in which the two ends of colon remaining after resection have been brought to the skin surface, adjacent to each other (Fig. 15.1 B); 3) the end (terminal) colostomy, in which only the proximal cut end of the colon opens at the skin surface, the other end having been closed and left within the abdomen (Fig. 15.1C).

There are only a few indications forestablishing a colostomy at the district hospital. A loop colostomy can be used to exteriorize an injured piece of colon or to relieve distal obstruction caused by a carcinoma or, in infants, by anorectal atresia or Hirschsprung's disease. A double-barrelled or terminal colostomy may be indicated aftcr resection of a gangrenous loop of colon, for example in patients w ith sigmoid volvulus.

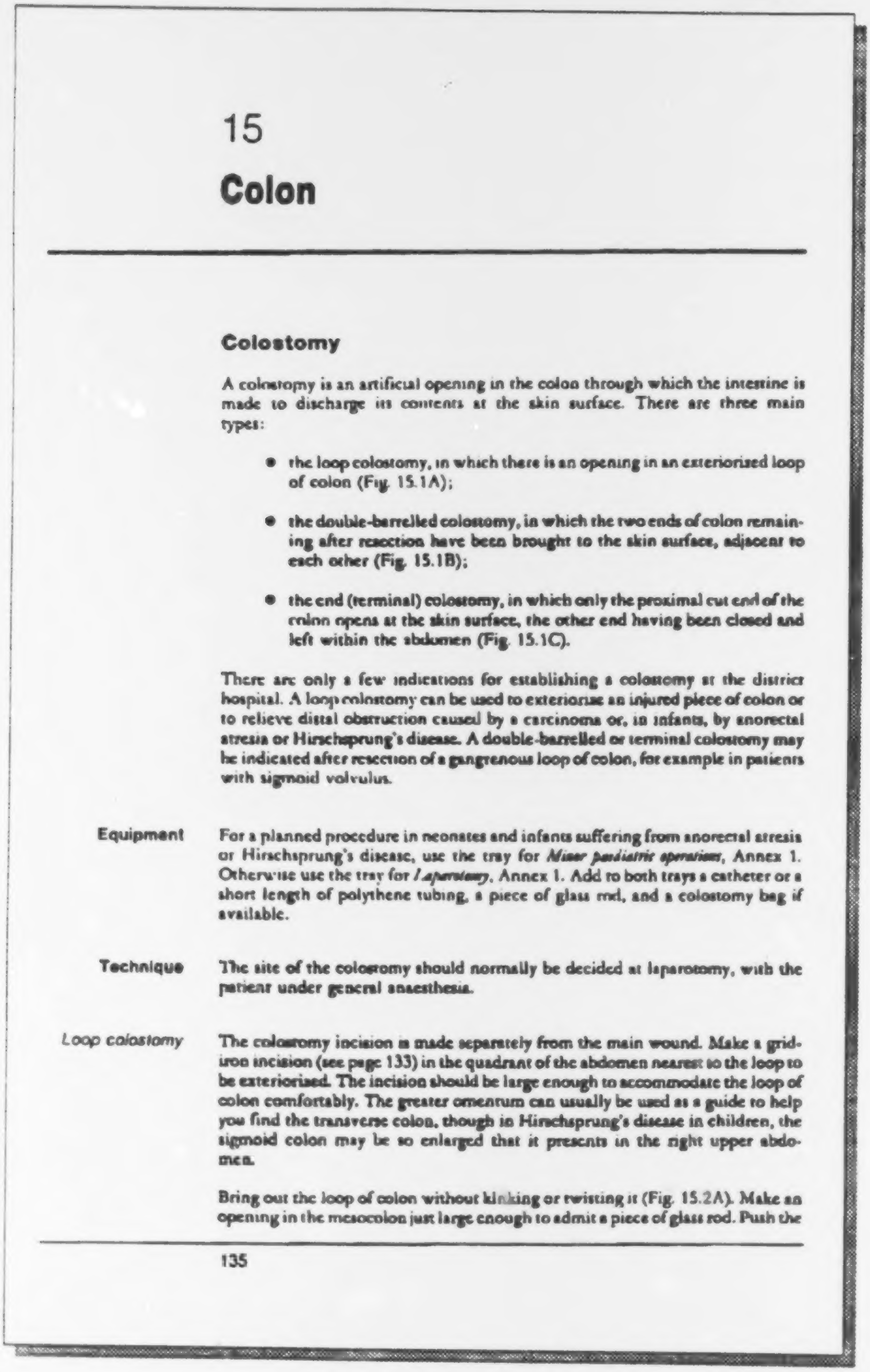
For a plannced procedure in neonates and infants suffering from anorcetal atresia or Hirschsprung's disease, uec the tray for *Miinor paediatrie operations* Annex 1. Othcrwise use thc tray for *Laparotomy*, Annex I . Add to both trays a catheter or a short length of polythene tubing, a piece of glass rod, and a colostomy bag if available. The site of the colostomy should normally be decided at laparotomy, with the patient under general anaesthesia.

The colo. tomy incision is made separately from the main wound. Make a grid-iron incision (see page 133) in the quadrant of the abdomen nearest to the loop to be exteriorized. The incision should be large enough to accommodate the loop of colon comfortably. The greater omentum can usually be used as a guide to help you find the transverse colon, though in Hirschsprung's disease in children, the sigmoid colon may be so enlarged that it presents in the right upper abdomen.

Bring out the loop of colon without kinking or twisting it (Fig. 1 5.2A). Make an opening in thc mesocolon just large enough to admit a piece of glass rod. Push the

135

Example 20



15

Colon

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A colostomy is an artificial opening in the colon through which the intestine is made to discharge its contents at the skin surface. There are three main types:

- the loop colostomy, in which there is an opening in an exteriorized loop of colon (Fig. 15.1A);
- the double-barrelled colostomy, in which the two ends of colon remaining after resection have been brought to the skin surface, adjacent to each other (Fig. 15.1B);
- the end (terminal) colostomy, in which only the proximal cut end of the colon opens at the skin surface, the other end having been closed and left within the abdomen (Fig. 15.1C).

There are only a few indications for establishing a colostomy at the district hospital. A loop colostomy can be used to exteriorise an injured piece of colon or to relieve distal obstruction caused by a carcinoma or, in infants, by anorectal atresia or Hirschsprung's disease. A double-barrelled or terminal colostomy may be indicated after resection of a gangrenous loop of colon, for example in patients with sigmoid volvulus.

Equipment For a planned procedure in neonates and infants suffering from anorectal atresia or Hirschsprung's disease, use the tray for *Minor paediatric operations*, Annex 1. Otherwise use the tray for *Laparotomy*, Annex 1. Add to both trays a catheter or a short length of polythene tubing, a piece of glass rod, and a colostomy bag if available.

Technique The site of the colostomy should normally be decided at laparotomy, with the patient under general anaesthesia.

Loop colostomy The colostomy incision is made separately from the main wound. Make a grid-iron incision (see page 133) in the quadrant of the abdomen nearest to the loop to be exteriorised. The incision should be large enough to accommodate the loop of colon comfortably. The greater omentum can usually be used as a guide to help you find the transverse colon, though in Hirschsprung's disease in children, the sigmoid colon may be so enlarged that it presents in the right upper abdomen.

Bring out the loop of colon without kinking or twisting it (Fig. 15.2A). Make an opening in the mesocolon just large enough to admit a piece of glass rod. Push the

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In summary, visual signals are devices that:

- *direct readers to what you want them to learn*
- *tell them what is most important*
- *allow them to scan and select what parts they need to read*

Practice Activity

1) Review educational materials you have designed in the past. Did you use any of the visual signals we have just discussed? Did you use them consistently? Are there any strategies that were not used, but that could have made your design better?

2) Consider any educational materials you are currently working on. Determine where the focussing strategies we have discussed in Part One can be used effectively and try to implement them. The aim is not to include all the strategies, but the ones that seem most appropriate.

Part Three

Organizing the Learning

Once your readers have understood what you want them to learn, the second stage of the learning process involves organizing the information into something meaningful. How do you sequence and present educational material so that learning can occur? Experts say the better the instruction is organized and the better learners can focus on it; the better chance they will learn what you want them to know.They must take the ideas you are trying to convey and connect them into a logical pattern. If they fail to organize the information properly, then misunderstandings arise. Learning may become inaccurate, slow and laborious.

At the end of Part Three, you will be able to explain the importance of and write:

- verbal signals (Chapter 6)
- summaries (Chapter 7)
- examples (Chapter 8), and
- sequencing (Chapter 9).

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Visual signals point the learner in the direction in which the lesson is moving

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Chapter 6
Verbal Signals

Chapter objectives

At the end of this chapter, you will be able to:

1) define the term verbal signal
2) list twelve or more examples of verbal signals, and
3) explain four reasons why signals are important.

What are verbal signals?

Verbal signals give direction

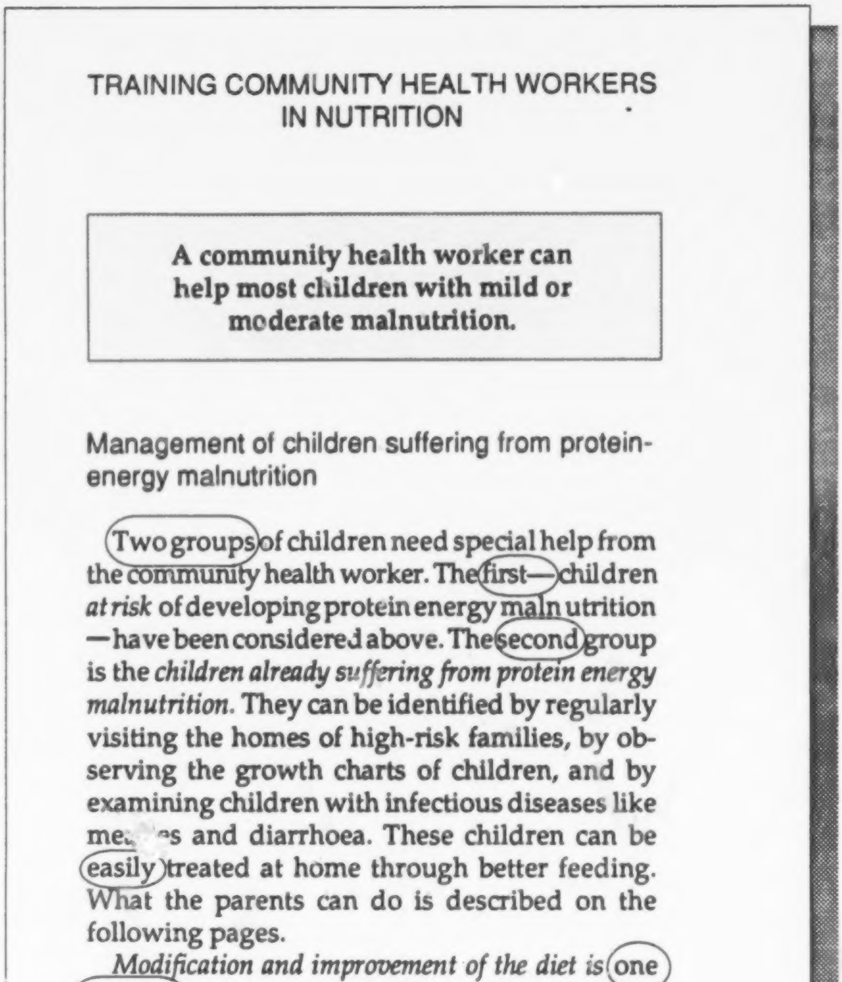
Verbal signals make clear how information is to be organized

In chapter five, we discussed the use of visual signals as a way of focusing people's attention. Similarly, there is a second kind of signal called a verbal signal. Verbal signals are words or phrases that tell the learners where the instruction is going — the direction. It helps them along the way by clarifying how the instruction is organized. For example, words like *first* or short phrases like *the five steps are...*, *followed by...*, or *in conclusion...* signal the order of the information. Likewise, other words like *in comparison...*, *similarly to...*, or *however...* indicate to the reader that a contrast is being made. Still other phrases such as *as a result...*, *due to...*, or *because of...* highlight that there is an association of some sort. In emphasizing how significant something is consider such phrases as *critical feature...*, *essential element...*, or *major point.*

Verbal signals are embedded in sentences

Verbal signals are found or embedded in sentences throughout educational materials. Using such signals reduces the amount of a reader's guesswork by making clear the structure of the instruction and the nature of the associations. For instance, to discuss a procedure, verbal signals like *first*, *second*, and *next* help students see the order of the steps involved. In explaining the attributes of something, words like *most significant*, *primarily*, or *commonly* reveal to the reader what features are more important than others. Look at Example [illegible] on the next page, the visual signals used in this text are circled. Are there other signals that we have not circled in the example?

Example 1



TRAINING COMMUNITY HEALTH WORKERS IN NUTRITION

A community health worker can help most children with mild or moderate malnutrition.

Management of children suffering from protein-energy malnutrition

Two groups of children need special help from the community health worker. The first—children *at risk* of developing protein energy malnutrition—have been considered above. The second group is the *children already suffering from protein energy malnutrition*. They can be identified by regularly visiting the homes of high-risk families, by observing the growth charts of children, and by examining children with infectious diseases like measles and diarrhoea. These children can be easily treated at home through better feeding. What the parents can do is described on the following pages.

Modification and improvement of the diet is one method a community health worker can use to manage malnutrition. But it will fail unless the family, and especially the mother of the child, cooperates actively. Convincing the parents that a modified diet is essential for the child may be the most difficult task of the community health worker. The mother should be convinced that what her child needs is not medicine, but a diet which she can afford but which needs careful preparation. A community health worker may know what foods a child should eat, but the mother must also believe in this and must be willing to make the best use of foods available to the family. Involving the family in the process of recovery is the best way to teach about malnutrition and prevent its recurrence. The parents will learn about better nutrition by seeing their children recover and become healthy. It is important to find out from the mothers why less

Below, Table 1 lists and groups a few commonly used signals. It is of course not exhaustive. Think of some of your own verbal signals and write them on a separate sheet of paper. After, scan a page or two from a book, report, or magazine for verbal signals and add these to your list as well. You'll see how quickly you can accumulate many examples in just a few moments.

Table 1

Sequence	Comparison	Association	Significance
First, second	Likewise	Because	Importantly
In summary	Referring to	Due to	Essential part
In conclusion	Regardless	As a result	Critical feature
Followed by	Contrary to	Therefore	Especially
After which	However	Generally	Primarily
Remember first	But	In response to	Needless to say
So far	As opposed to	For instance	Overall
Next	Conversely	For example	Most useful
Look below	Another way	Without such	Clearly
Proceed to	Or	In addition	Commonly

In summary, verbal signals are words or phrases that can:

- *direct the readers to what you want them to learn*
- *make clear the organization of the instruction*
- *make clear the nature of relationships between ideas*
- *reduce learner guesswork*

Guidelines in Preparing Verbal Signals

When you are designing educational materials, carefully consider when and where to use verbal signals. It may be helpful for you to ask yourself the following questions:

1) What words am I am using to help the readers link together steps in a procedure or process?
2) What words am I am using to help them make comparisons and contrasts?
3) What words am I using to help them see the relationship of ideas to other things?
4) What words am I am using to emphasize a point not to be missed by the readers?
5) What words am I am using to help them understand the degree to which something is important and other things less so?
6) Should I use a highlighting strategy such as italic or bold print when using verbal signals?

Practice Activities

1) Review educational materials you have designed and developed in the past. Do you purposefully use verbal signals? Ask yourself the six questions above as you review your materials.

2) Review educational materials you are currently designing. Where could verbal signals be useful in helping readers organize their learning? Again, ask yourself the six questions above as you review your designs.

Chapter 7
Summaries

Chapter objectives

At the end of this chapter, you will be able to:

1) explain two reasons why summaries are important
2) identify two ways to use summaries, and
3) design summaries for your educational materials.

What are summaries?

Summaries overview main ideas at the end of instruction

A summary briefly overviews the main ideas that have been discussed up to that point in the instruction. Therefore, summaries commonly appear at the *end* of a piece of instruction. They are written as short, concise sentences or as a list of the main ideas. Once learners have read part of the materials, you should provide them with a review of what they have just read. This ensures that they have picked up the most important parts you intended them to learn.

Summaries help learners to realize what they missed & reaffirm what they know

Summaries are useful to readers. If they missed anything in their reading, they will realize it when they read it in the summary. This will prompt them to go back and reread what they initially missed. If they learned all that was intended, then the summary will reaffirm what they know. It will also act as a quick source of review when revising materials or preparing for examinations later.

If you are discussing a procedure, a summary can ensure you that the reader has grasped the steps in the correct order. If you are explaining new ideas, a summary can succintly present all those ideas and their relationship to each other. In this manual, look at how the summaries are written and presented. Also note how we have consistently used boxes (visual signal) around our summaries.

Margin call-outs can provide an ongoing summary

In contrast, consider our discussion of margin call-outs in Chapter Four. Remember how we said that margin call-outs can be used as an *ongoing* summary? In this case, the summary appears along side the main body of the instruction rather than appearing at the end. Again look at Examples 1 and 4 in Chapter Four to see how margin call-outs can provide a continuous summary.

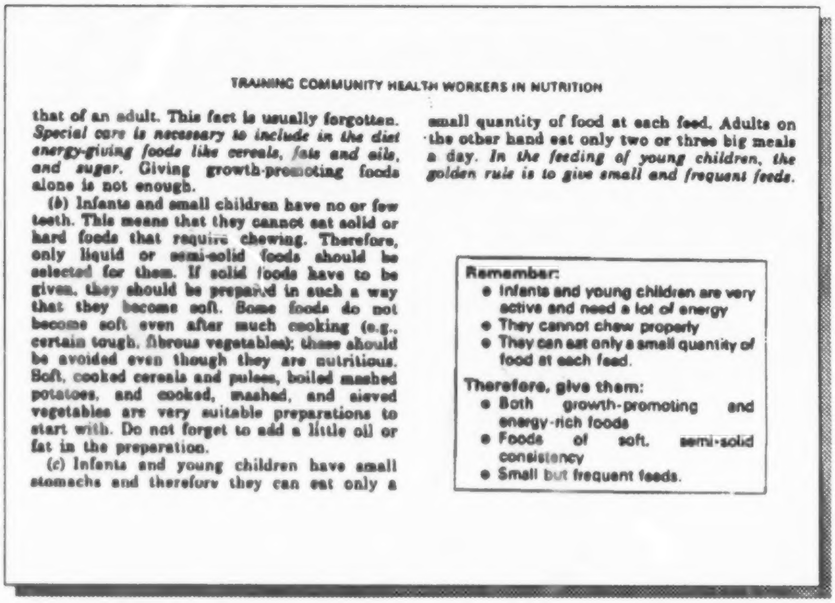
So you have two ways to approach using summaries:

1) end summaries, and
2) ongoing summaries.

Below, Example 1 displays a summary from a nutrition lesson for community health workers. Observe how the summary overviews six main ideas using brief, concise sentences. The summary is signalled by the use of a box appearing at the end of the lesson. Also, notice the use of bullets and bold print in this same example. Not only are summaries helpful for readers; they can be useful as a teaching tool. Summaries can be made into overhead transparencies to illustrate what you are teaching, or can be printed on classroom handouts. What other uses can you think of?

Where in the educational materials that you are currently designing would summaries be helpful in organizing the reader's learning? What type of summary would be most appropriate for the subject area you are designing?

Example 1



TRAINING COMMUNITY HEALTH WORKERS IN NUTRITION

that of an adult. This fact is usually forgotten. *Special care is necessary to include in the diet energy-giving foods like cereals, fats and oils, and sugar.* Giving growth-promoting foods alone is not enough.

(*b*) Infants and small children have no or few teeth. This means that they cannot eat solid or hard foods that require chewing. Therefore, only liquid or semi-solid foods should be selected for them. If solid foods have to be given, they should be prepared in such a way that they become soft. Some foods do not become soft even after much cooking (e.g., certain tough, fibrous vegetables); these should be avoided even though they are nutritious. Soft, cooked cereals and pulses, boiled mashed potatoes, and cooked, mashed, and sieved vegetables are very suitable preparations to start with. Do not forget to add a little oil or fat in the preparation.

(*c*) Infants and young children have small stomachs and therefore they can eat only a small quantity of food at each feed. Adults on the other hand eat only two or three big meals a day. *In the feeding of young children, the golden rule is to give small and frequent feeds.*

Remember:
- Infants and young children are very active and need a lot of energy
- They cannot chew properly
- They can eat only a small quantity of food at each feed.

Therefore, give them:
- Both growth-promoting and energy-rich foods
- Foods of soft, semi-solid consistency
- Small but frequent feeds.

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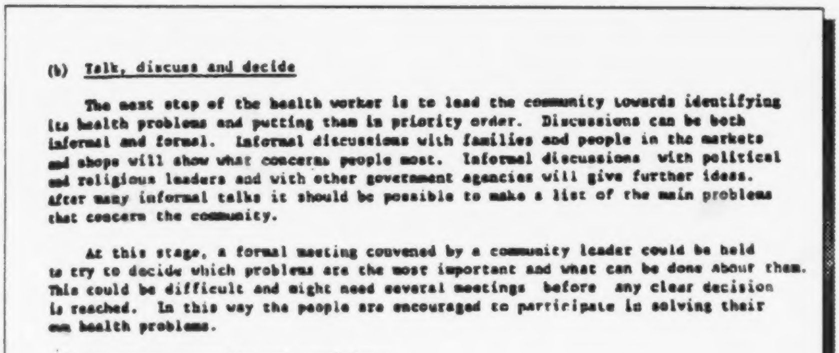
Below, a second example shows a summary from the end of a lesson on management in primary health care. Again, notice how the summary is written. The statements are short and to the point. Like Example 1, a box is used to draw attention to the summary and dashes replace bullets in order to distinguish the main points. Notice that in Example 2 the box is labelled with the word "summary" at the top. This helps to identify what the box is all about. However, in Example 1 this was not used because at the beginning of the whole unit of instruction the reader was informed that summaries would appear at the end of each segment. In this case, telling the reader ahead of time if and where summaries appear and using summaries consistently precludes the need to label each one.

Example 2



(b) Talk, discuss and decide

The next step of the health worker is to lead the community towards identifying its health problems and putting them in priority order. Discussions can be both informal and formal. Informal discussions with families and people in the markets and shops will show what concerns people most. Informal discussions with political and religious leaders and with other government agencies will give further ideas. After many informal talks it should be possible to make a list of the main problems that concern the community.

At this stage, a formal meeting convened by a community leader could be held to try to decide which problems are the most important and what can be done about them. This could be difficult and might need several meetings before any clear decision is reached. In this way the people are encouraged to participate in solving their own health problems.

(c) Encourage, organise and participate

It is quite easy to talk about what is wrong. It is much more difficult to put things right. When the people have decided what the main health problems are, and agreed on their order of importance, a plan of action must be prepared. (See Part IV).

It is in preparing a plan of action that the health worker can help most. From his knowledge and training, the causes of some problems and how to solve them can be explained to the people. For example, if the people are concerned about sickness among children, the health worker can explain various ways of preventing it, such as by protecting water sources, immunising the children, and improving weaning foods.

The health worker or health team works with the community to put the plan into action, to make changes that will lead to improvement over a period of time.

SUMMARY

- THE PURPOSE OF A HEALTH TEAM IS TO WORK WITH THE COMMUNITY
- WORKING WITH THE COMMUNITY NEEDS DEEP UNDERSTANDING
- WORKING WITH THE COMMUNITY MEANS:
    - OBSERVING, LISTENING AND LEARNING;
    - DISCUSSING AND DECIDING; AND
    - ORGANIZING AND PARTICIPATING.

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In summary, there are two ways to use summaries:

- *at the end of instruction*
- *continuously alongside instruction*

Summaries help organize learning because they:

- *overview main ideas*
- *help readers to realize if they missed anything*
- *help them to reaffirm what they know*

Guidelines for Preparing Summaries

In preparing summaries, remember to:

1) Only highlight the main points.
2) Use brief, concise language.
3) State them in same language used in the instruction.
4) Insert summaries within small segments of instruction rather than putting them at the end of long segments where too many ideas have been presented.
5) Only include ideas discussed in that section.
6) Use numbers to order steps.
7) Be consistent where and how you present them.
8) Tell the readers that there are summaries, where they are located, and how to use them for studying.

Practice Activity

1) Review educational materials you have designed in the past. Did you work summaries into your designs? If you used summaries, were they well written and consistent? Were they inserted after small segments of instruction? If you did not use summaries, should you have?

2) Review educational materials you are currently designing. Where would summaries seem most useful? Could you use them to review any main ideas or steps in a procedure? What type of summary would seem most appropriate for the subject area and type of person you are targeting?

Chapter 8
Examples

Chapter objectives

At the end of this chapter, you will be able to:

1) explain three reasons why examples are important
2) define two types of examples, and
3) use model examples and related examples in your educational materials.

What are examples?

Examples clearly illustrate the features of an idea

You have explained a new idea and this idea has certain qualities or features that make it what it is. Examples are a way of showing the features of an idea in an obvious, concrete way. By inserting various examples in your materials, you can help readers differentiate the similarities (what is) from the differences (what is not) among ideas.

Imagine you are trying to explain the notion of disease vectors. You might convey the idea that vectors are creatures that pass disease from one animal or person to another animal or person, and that people contract many serious illnesses because of such vectors. The concept is that the disease can be spread by insects, or by creatures living in the water or on land. Examples can be used to characterize what is meant by each of these three varieties of animal vectors. Your design might include specific types of insects such as mosquitos and tsetse flies. Examples of transmission in water could include guinea worms and snails. Examples of land animals might include rats and dogs.

Two kinds of examples, each with its own purpose

There are several kinds of examples to consider and each one has a different purpose. We will discuss two main kinds of examples:

1) model examples, and
2) related examples.

Model examples are clear cases of what something is

A *model example* is a clear, obvious case that displays the key features of an idea you are trying to convey. For instance, you are writing a section on skin burns. A model example may be a chemical burn induced from a spill of acid or another from boiling water or oil. These show in concrete terms what are the key features of skin burns. It answers the questions, "What is it?" Returning to the initial example about disease vectors on the previous page, mosquitos and tsetse flies are model examples of insect vectors.

Model examples should illustrate a range of possible situations

An important feature of using model examples is to give instances that are *varied*. By *varied* we mean the use of examples that convey to readers the scope or range of possible situations related to the idea. In explaining about skin burns, model examples would range from those induced by acids, alkalines, oils, and boiling water.

Model examples organize the limits of ideas

Model examples are important because they tell you what something *is*. From this you can organize and understand the general "boundaries" or limits of an idea. Examples concretely organize the parameters of an idea.

Related examples help to refine understanding

Once your readers have a clear understanding of model examples, *related examples* can be useful in helping them to organize their understanding of an idea in much finer detail. Related examples are those cases that have some of the features displayed by model examples, but yet are different.

Continuing with the instance of skin burns, a related example could be severe allergic skin rashes which may have the redness, blistering and pain of burns, but are not skin burns. A related example for disease vectors might be viruses since they are passed from person to person, but they are not considered "animal" like the model examples. What other related examples can you think of?

In summary,
- *Examples clearly illustrate the key features of an idea*
- *Divergent instances show the range of possible situations*
- *Examples allow learners to organize and understand the the general "boundaries" or limits of an idea*

- *There are two kinds of examples to use:*

  1) model examples
  2) related examples

Guidelines for Preparing Examples

When preparing examples ask yourself the following questions when you are trying to convey an idea:

1) Am I using simple, obvious cases?
2) Am I using more than one example to convey an idea?
3) Am I using varied instances of model examples to show the range or scope of possible situations?
4) Am I using model examples to set the boundaries of an idea?
5) Am I using related examples to fine-tune the understanding?

Practice Activity

1) Review educational materials you have designed in the past. What kind of examples did you use? How many did you use? Do you think the examples helped your readers to organize their understanding of the idea you were trying to convey?

2) Review educational materials you are currently designing? Where would model examples help convey the key features of an idea? Related examples? Use the five questions listed in the above guidelines to direct yourself.

Part Four

Integrating the Learning

The last primary stage of learning consists of integrating the organized information into what the learners already know. The result will be that they will remember and use what has been learned at a later point in time. So the new information you are presenting is connected with the existing knowledge they already possess - linking the old with the new. The more involvement they have with such information, the stronger it becomes in memory.

At the end of Part Four, you will be able to explain the importance of and incorporate into your educational materials:

1) practice activities (Chapter 9)
2) feedback (Chapter 10), and
3) inserted questions (Chapter 11).

Practice is an essential part of the learning process: it helps learners to use and apply what they have learned

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Chapter 9
Practice Activities

Chapter objectives

At the end of this chapter, you will be able to:
1) explain three reasons why practice activities are important, and
2) incorporate practice activities into your educational materials.

What are practice activities?

Practice allows readers to use or apply ideas

Involvement and interaction help to integrate the information

Practice activities are learning exercises that allow readers to use or apply the ideas you are trying to convey. Allowing time for practice activities gets them involved with the materials. It gives them more time to interact with the ideas. This *involvement* and interaction time helps them to integrate what they are learning, so they can remember it more readily. Experts tell us that people learn better when they are given the chance to use what is taught rather than just reading or hearing about it. When preparing educational materials you must allow for the practice of ideas if you want your learners to be able to retain information and apply it at a later point in time.

Think of how you would teach someone about something. Let's say you are going to instruct a person on how to dress wounds. You would not just talk and talk about how to clean a wound or apply a dressing. You would explain about how and why to do it. Along the way you would demonstrate the method and allow learners to actually try it out. Perhaps you would have them practise tying the dressings on different parts of the body. Incorporating activities or exercises into your designs which give people an opportunity to apply an idea is vital to meaningful learning.

There is a wonderful saying that portrays this notion of practice:

> If you tell me, I forget.
> If you show me, I understand.
> If you *involve* me, I remember.

Design practice after short segments of instruction

When presenting ideas, consider designing activities at the end of the segment before going on to new ideas. Or if you are discussing something procedural, include time to practise the procedure. Practice activities are most useful at the end of short segments or units of instruction. Notice how in this manual we have inserted practice activities after a discussion of each strategy. Practice is less useful if it is saved until the end of an entire course or large unit. So continuously work in practice activities throughout your materials. Do your readers have to read for a long period of time before you give them something to do?

Individual versus group practice activites

There are different ways to think of practice activities when designing activities. First, there are activities that learners must do alone and those that require group interaction. Individual activities might include writing short answers or calculating something like pulse or respiration rates. Group activities might include such things as group discussions or role playing. Deciding between individual and group activities will depend on the subject area, learner characteristics, and of course the setting. There will be situations when one is more appropriate and other times when both should be used. There will also be times when practice activities are not appropriate at all in certain units of learning. For example, theory units would not typically have practice activities. Do no overload your text with practice activities.

"Think" versus "think and do" practice activites

Secondly, there are practice activities that make people just think about something and others that make them think and do something. For instance, asking readers to list what needs to be covered when instructing someone in family planning methods is a "think" activity. Asking them to role play with others on instructing someone in family planning methods is a "think and do" activity.

"Think" activities are those that get students to analyze, review, reflect on, and summarize what they are learning. "Think and do" activities are those that demand more action, like demonstrating, role playing, and presenting. Table 1 displays a list of practice activities you might consider incorporating into your instructional materials. In reviewing Table 1, check which activities you use in your designs. Do you use a variety of them? Do you use one kind more than others? Where do you use practice activities? How long do your learners have to read before you give them something to do?

Table 1

Which practice activities do you use in your designs?

	use often	use sometimes	don't use	will try
1) Analyze a case study	☐	☐	☐	☐
2) Give examples and ask to identify main features	☐	☐	☐	☐
3) Give poor examples and ask to correct the errors	☐	☐	☐	☐
4) Reflect on personal experiences	☐	☐	☐	☐
5) Write a short answer	☐	☐	☐	☐
6) Outline a procedure	☐	☐	☐	☐
7) Group discussions	☐	☐	☐	☐
8) Give a scenario & ask what they would do in that situation	☐	☐	☐	☐
9) Describe moral dilemma and ask how they would resolve the conflict	☐	☐	☐	☐
10) Role play	☐	☐	☐	☐
11) Demonstrate a procedure	☐	☐	☐	☐
12) Draw a diagram or map	☐	☐	☐	☐
13) Design and present a short talk	☐	☐	☐	☐
14) Calculate or measure something like a blood pressure	☐	☐	☐	☐

Undoubtedly, the practice activities listed in Table 1 are only a partial list of ideas. Your mind is the only limitation. What other practice activities can you think of?

However, when designing practice activities, you must consider such things as:

- subject area
- learning objectives
- learner characteristics
- setting or environment
- time to spend, and
- timing of the activities.

In summary, practice activities:

- *get learners involved and interacting with information*
- *help them to remember and use at a later point in time what has been learned*

Guidelines for Preparing Practice Activities

When designing practice activities for your educational materials, ask yourself the following questions:

1) Am I keeping in mind the objectives I set at the beginning of the instruction? Do the practice activities help attain the objectives?
2) Am I carefully considering the kind of learners I am targetting, the setting where the learning will take place, and the amount of time each practice activity will require?
3) Am I using practice activities after short segments of instruction?
4) Am I determining how long students have to read before I get them involved in applying or using what they are learning?
5) Am I using relevant practice activities and not just practice for the sake of it?
6) If there are many ideas, am I designing a practice activity that uses or connnects them all?
7) Am I giving good instructions on how and what to do? For instance, how much time to spend, what to circle or underline, when to get a partner to work with, etc.

Practice Activities

1) Make a list of practice activities that are NOT included in Table 1. Include those activities you use and new ones that come to mind after reading this chapter. Keep the list for future reference.

2) Review educational materials you have designed and developed in the past. Did you include practice activities? How long do students have to read before they are allowed time to practice?

3) What kind of activities would your readers learn the most from and enjoy doing? Use the questions on page 80 as a guide.

Feedback on how well they have learned a lesson is vital for those who learn on their own

Chapter 10
Feedback

Chapter objectives

At the end of this chapter, you will be able to:

1) explain three reasons why feedback is important, and
2) use feedback in your educational materials.

What is Feedback?

Feedback allows learners to monitor and improve their progress

Once the learners have had chance to apply ideas, you should provide them with feedback. Tell them how well they did. Feedback is constructive comments and suggestions about how learners do in terms of performance. It points out what was both good and weak in their performance so they can check and monitor their progress. It is not just telling them what they did wrong, but it is balanced with what they did right. Without feedback, learners are apt to continue doing things the same way. If they happen to be doing things inaccurately, this is a serious problem. And if you are designing educational materials for health workers who will be teaching themselves (self-instruction) and relying solely on those materials, feedback is critical.

Feedback is critical for those who learn on their own

So what does feedback look like? Most of us are familiar with such things as letter grades and marks on school assignments or in classes. This kind of feedback told us how well we did in general terms. What does the grade "B" or a mark of 80% really mean? How does the student know why it was not a grade of "A" or a mark of 99%? And what about students who attain lower grades, how do they know where and how to improve? What if students are given comments on their papers like "good " or "weak argument" or "nice job"? What does this all mean? What was good? Why and where was the argument weak?

Feedback is detailed and specific

The point is that good feedback is more than just grades or short notes of praise. Good feedback contains detailed comments, suggestions, advice, and opinions on assignments and work that tells the learner

Avoid vague, general words

specifically where and how to improve. General comments like "weak" or "good" are not helpful and should be avoided.

Let us take an example. Pretend that a trainee, a Community Health Worker, is learning about good nutrition for young children. As an assignment, the trainee is asked to outline in writing a good diet in terms of what, when, and how often infants and one year olds should eat. Good feedback might sound like this: "The outline was good in advising mothers to use foods readily available in the area and at reasonable cost. However, it did not take into account the religious beliefs and social groups of the area which influence feeding practices. How would the outline change if these things were taken into consideration?" Feedback that is detailed and specific like this will help this trainee to make the changes necessary to improve the outline. Good feedback helps learners to continue thinking about their work and how to do it differently next time.

Personalized versus pre-designed feedback

This type of feedback is useful when you are dealing with learners face-to-face. This feedback is personalized because you are able to react to their work on an individual basis. But what about those people who are learning independently and their only source is a textbook or manual? Those who are involved in self-instruction have to rely on feedback that is pre-designed for everyone ahead of time. As we said earlier, feedback is vital to learners who are working alone since this is the only way for them to monitor their learning. How can you do that?

Give feedback immediately after activities

If you are designing educational materials for self-instruction, feedback can be approached in several ways. For instance, all practice activities should be followed by the answers. This is important because experts tell us that feedback should be given immediately, or as soon as possible after you ask a learner to do something. Some questions may have only one correct answer. These tend to be more low level questions that ask the learner to list, name, or underline something. Other questions have no exact right or wrong answer. There may be several ways to respond. In this case, allow your designs to give the learners several possible answers to the same problem. Let them see other perspectives. This helps them to think about their work from a different angle which they can then consider for the next time.

Alternative approaches to feedback appropriate for self-instruction

Another approach is to insert questions in the middle of a lesson and ask learners to respond before reading any further. Once they have thought or acted on the question, they can resume reading to find out what the answer(s) is/are. Some designs instruct learners to stop reading. Other designs use signs like horizontal lines or arrows to signal that the answer to the question follows. Sometimes the answers are written upside down alongside the question. These suggestions are particularly appropriate in preparing materials for self-instruction.

Good feedback includes not only giving the answers, but also provides learners with warning statements or sources of additional help. For instance, you might include something like, "Compare your answer to ours below. If you did not include the symptoms of dehydration and coughing, go back and read pages 10-14 again before continuing with the lesson." This feedback tells the learners that these two symptoms are too important to miss and indicates where to review the information.

In summary, feedback:

- *helps learners to monitor and improve their learning*
- *details and specifies what and where to improve*
- *should be given immediately after learning activities*
- *is critical for those who learn and work alone*

Guidelines for Giving Feedback

When designing feedback, ask yourself the following questions:

1) Are answers given for all practice activities?
2) Can learners access the answers after all practice activities?
3) If there is more than one way to respond, are several answers provided?
4) Is the feedback detailed and specific so that learners can monitor and improve their learning?
5) Is feedback given immediately after learners are asked to do something?
6) Are warning statements included in the feedback?
7) Is advice for additional reading include in the feedback?
8) Is feedback balanced in terms of both strengths and weaknesses?

Practice Activities

1) What are some features of good feedback? List what kind of feedback would be most helpful to you if you were the learner. For instance, would you want the feedback to be soon after you did something (timely) or explained in enough detail to be helpful?

2) Referring to your answer in question 1, review educational materials you have designed and developed in the past. Did you include feedback? If yes, does your feedback have the features you listed in response to question 1?

3) Review educational materials you are currently working on. Is feedback provided after practice activities? Where else would feedback be useful? Use the questions on the previous page to guide you.

Chapter 11
Inserted Questions

Chapter objectives

At the end of this chapter, you will be able to:
1) identify two kinds of inserted questions
2) explain two reasons why inserted questions are important
3) identify four places where inserted questions can be used, and
4) use inserted questions in your educational materials.

What are Inserted Questions?

Questions encourage learners to think more deeply

An inserted question is a design strategy that gets readers to think more deeply about what they are learning. Questions can be used to oblige them to think about something from a different point of view. Questions can purposely conflict with what is known, so as to force the readers to seek answers to a problem. Questions can make them figure out the answer instead of it always being provided for them in the instruction. The use of inserted questions is a way of encouraging greater reader involvement with the materials. Remember how we said in Chapter 10 that practice activities get learners involved with the information as a means of helping them to remember it? Well, so it is with inserted questions. It gets them involved and interacting with the information. Think of it as a brief practice activity. Experts tell us that questions are important to learning.

Questions get learners involved with information

Use questions at the end of instruction

Where can inserted questions be used? They can be used in several areas of your materials. Most commonly, questions are inserted at the end of units or short segments of instruction. Sometimes they are called Review or Self-help Questions. These may be familiar to you.

Use questions at the beginning of instruction

Also common, are questions placed at the beginning of instruction to make the learners think about the answers as they begin to study the materials. In a way, this is like taking learning objectives and converting them into questions. Pre-test questions that try to determine what the learners know before they begin a unit are also of this type.

Change titles to questions

Thirdly, consider using titles or headings as an opportunity to pose questions. As learners read, they try to answer the question asked by the title or heading. We have used this approach in this manual.

Place questions throughout instruction

Lastly, experts tell us that posing questions throughout educational materials helps to keep the readers engaged. For example, questions can be inserted in the middle of instruction. When they are reading passages in the text, questions cause the learners to stop for a moment and think more deeply. Inserted questions are like stop signs we find at the corner of street intersections when driving a car. When learners read your materials, how long do they have to read before you ask them to stop and think about what they are learning?

Kinds of questions

When designing educational materials, not only must you consider *where* to put questions, but also *what* kind of questions to use. There are two primary groups of questions to consider:

1) low level questions, and
2) high level questions.

Low level questions

Low level questions are those that ask learners to name, identify, and/or explain something. Commonly, these are questions that ask them to look back through the material they are using for the answers. For instance, you might ask them to list a series of symptoms of a particular disease. Or you might pose a question that asks them to explain the route of transmission of an infectious disease. Inserted questions that ask learners to do such things as define, underline, discuss, find, or translate are low level questions.

High level questions

In contrast, high level questions are those that require learners to think more deeply. Such questions ask them to critique, appraise, design, plan, solve, relate, organize or compare something. For example, you might ask learners to critique a health survey. Also, you might ask them to compare and contrast two approaches to health education in small rural communities. Commonly these are questions that require reference to information beyond what is in the text. In other words, the learner must draw on other sources to be able to answer these questions.

Factual as opposed to application questions

The difference between the two kinds of questions is how deeply you oblige the readers to think about something. It is easier to list or explain something than it is to evaluate or design something. Listing or explaining are more factual-type questions. Evaluating or designing are more application-type questions.

High level questions are better for remembering

Experts tell us that high level questions are better in helping learners to remember information so that it can be used later when it is needed. The level of involvement required by higher level questions is greater than that of lower level questions. This is not to imply that you should not use low level questions. What kind of questions you design will depend on the subject area and type of learners you are working with, as well as the objectives you have set. Below, Table 1 groups additional descriptors that are used in low and high level questions. What kinds of questions are you using in the educational materials you are currently designing?

Table 1

Questions are low or high level
if they ask students to:

Low level questions	High level questions
define	judge
record	critique
list	compare
underline	contrast
discuss	estimate
recognize	create
explain	formulate
identify	organize
locate	solve
recall	relate

Examples of inserted questions

On the following pages are two examples of inserted questions. These were dispersed throughout some materials on health education. In this case, the designer intended the learners to answer questions every two or three pages while reading. Example 1 is taken from a section promoting participation with communities. Example 2 is a page taken from another section on identifying resources for primary health care planning. What kind of questions are used in each example? What effect does each question have? Write your comments in the note space provided below each example.

Questions as focal points

What did you notice after reviewing Example 1? Your eyes should have immediately focussed on the question inserted in the middle of the page. The question is posed after a list of reasons are given for lack of participation in community projects. It asks the reader to think of other reasons not listed there. This is a relatively low level question since it asks the reader to list reasons.

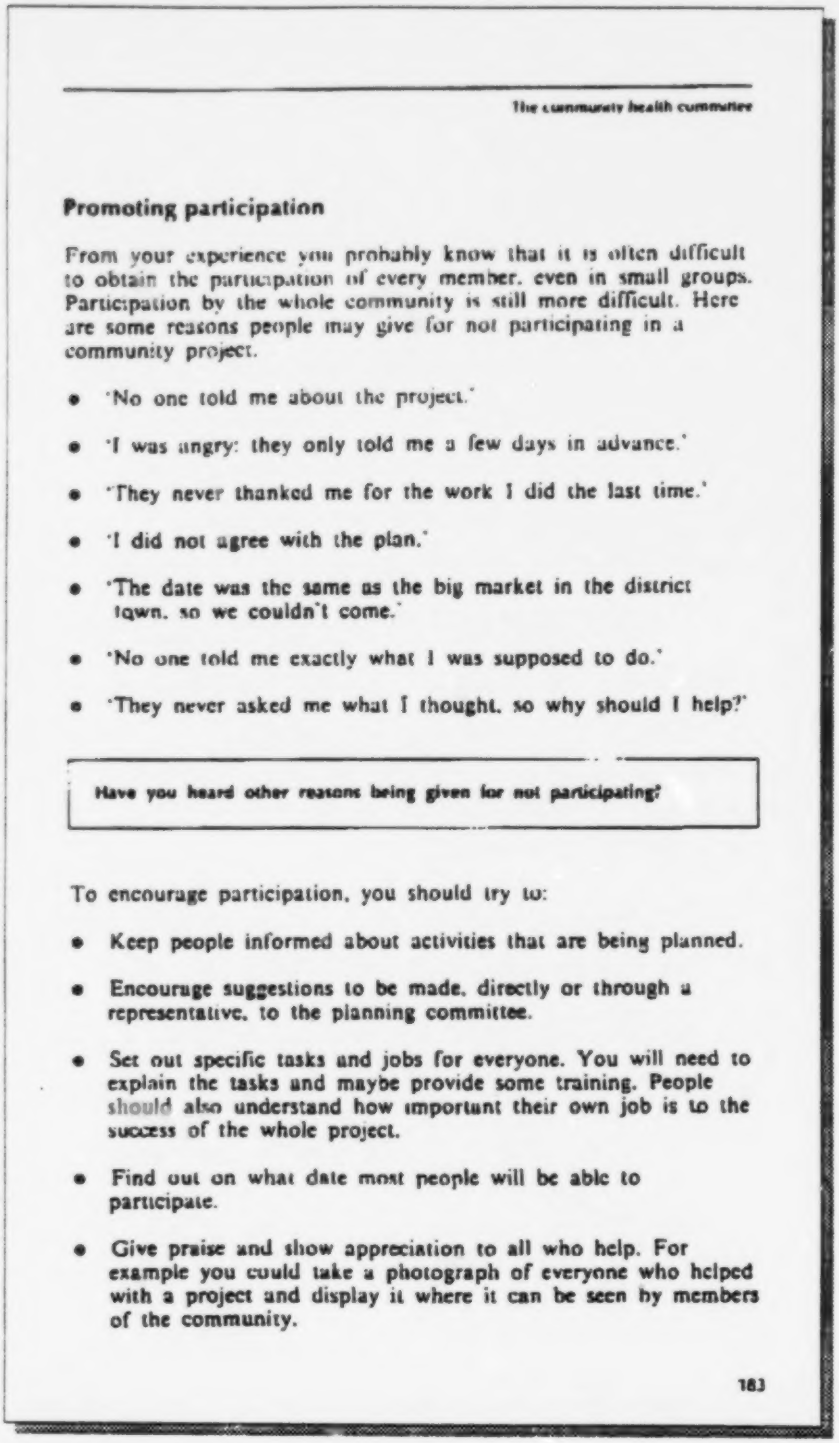
Use of design strategies

What else did you notice in this example? This page also uses four obvious design strategies which we have discussed in previous chapters: boxes, bullets, bold highlighting and spacing. A box is used to draw attention to the inserted question in the middle of the page. Imagine the effect if the box had been shaded. Bullets point out the reasons for not participating and things to do to encourage participation. The title at the top of the page is highlighted in bold print. Spacing is used to group and separate each of the ideas presented.

What did you find when you reviewed Example 2? As in the first example, your attention should have been drawn to the inserted question located towards the top of the page. There are two case studies on the previous page which you did not see which present problems which people have in gaining access to resources. Referring to these case studies, the question asks the readers to think about how to solve the problem of how health workers can access resources to help villages. This is a high level question since it asks them to analyze and solve a problem.

What other design strategies did you observe in Example 2? What is different from Example 1 is the use of smaller print at the top of the page. This is used to distinguish the case studies from the main body of the text.

Example 1



The community health committee

Promoting participation

From your experience you probably know that it is often difficult to obtain the participation of every member, even in small groups. Participation by the whole community is still more difficult. Here are some reasons people may give for not participating in a community project.

- 'No one told me about the project.'
- 'I was angry: they only told me a few days in advance.'
- 'They never thanked me for the work I did the last time.'
- 'I did not agree with the plan.'
- 'The date was the same as the big market in the district town, so we couldn't come.'
- 'No one told me exactly what I was supposed to do.'
- 'They never asked me what I thought, so why should I help?'

Have you heard other reasons being given for not participating?

To encourage participation, you should try to:

- Keep people informed about activities that are being planned.
- Encourage suggestions to be made, directly or through a representative, to the planning committee.
- Set out specific tasks and jobs for everyone. You will need to explain the tasks and maybe provide some training. People should also understand how important their own job is to the success of the whole project.
- Find out on what date most people will be able to participate.
- Give praise and show appreciation to all who help. For example you could take a photograph of everyone who helped with a project and display it where it can be seen by members of the community.

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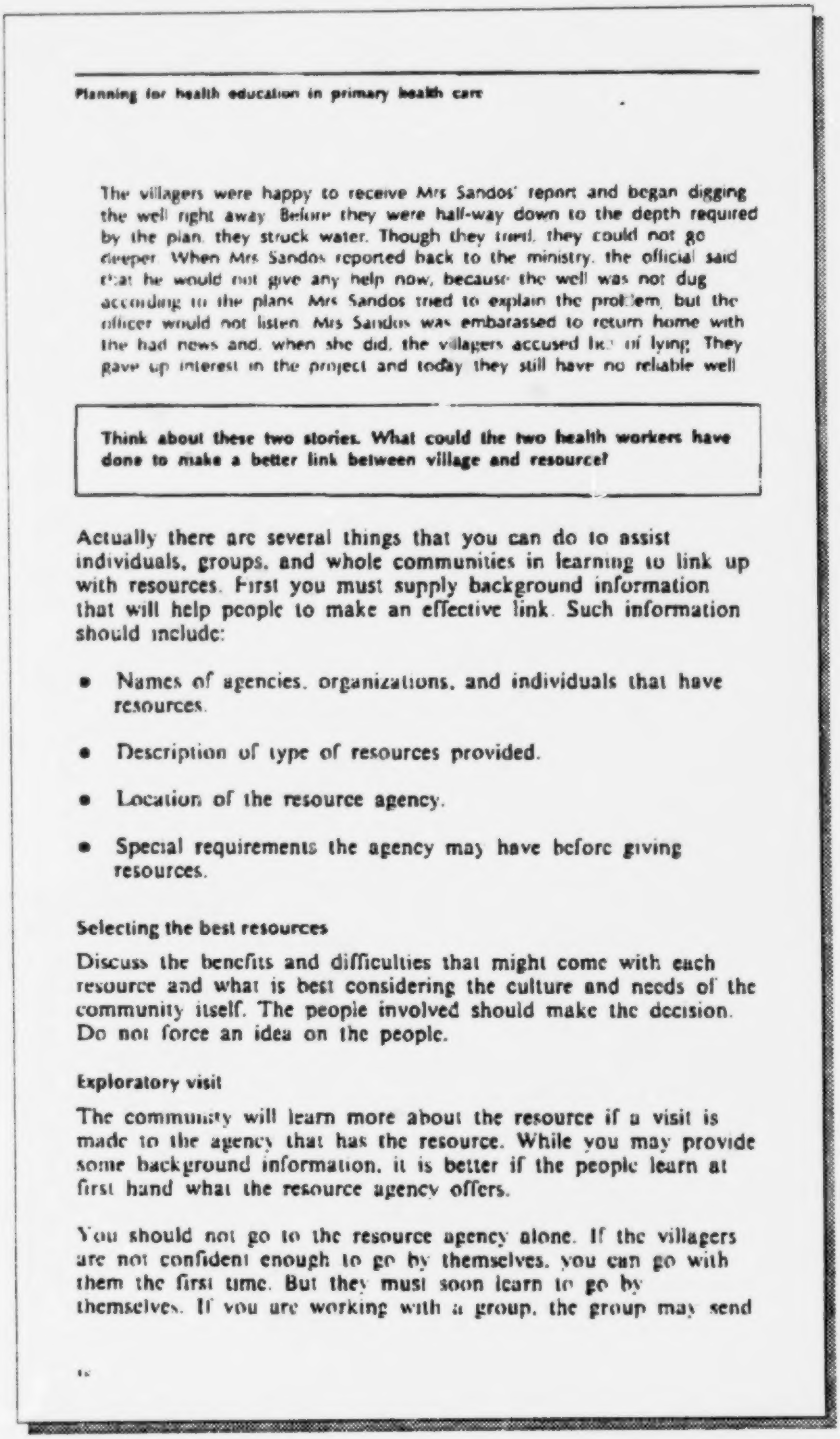
Example 2



Planning for health education in primary health care

The villagers were happy to receive Mrs Sandos' report and began digging the well right away. Before they were half-way down to the depth required by the plan, they struck water. Though they tried, they could not go deeper. When Mrs Sandos reported back to the ministry, the official said that he would not give any help now, because the well was not dug according to the plans. Mrs Sandos tried to explain the problem, but the officer would not listen. Mrs Sandos was embarassed to return home with the bad news and, when she did, the villagers accused her of lying. They gave up interest in the project and today they still have no reliable well.

Think about these two stories. What could the two health workers have done to make a better link between village and resource?

Actually there are several things that you can do to assist individuals, groups, and whole communities in learning to link up with resources. First you must supply background information that will help people to make an effective link. Such information should include:

- Names of agencies, organizations, and individuals that have resources.
- Description of type of resources provided.
- Location of the resource agency.
- Special requirements the agency may have before giving resources.

Selecting the best resources

Discuss the benefits and difficulties that might come with each resource and what is best considering the culture and needs of the community itself. The people involved should make the decision. Do not force an idea on the people.

Exploratory visit

The community will learn more about the resource if a visit is made to the agency that has the resource. While you may provide some background information, it is better if the people learn at first hand what the resource agency offers.

You should not go to the resource agency alone. If the villagers are not confident enough to go by themselves, you can go with them the first time. But they must soon learn to go by themselves. If you are working with a group, the group may send

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In summary, inserted questions are important because:

** they get learners thinking more deeply*
** they oblige them to become more involved with the information*

There are two kinds of inserted questions:

1) Low level questions
2) High level questions

Guidelines for Preparing Inserted Questions

Important considerations

When preparing inserted questions ask yourself the following:

1) What level of question do I want to use: low level (factual) or high level (application)?
2) Do the questions match what I am trying to achieve in the objectives?
3) Where do I want to put questions: At the beginning, in the middle, or at the end of the instruction?
4) How long do learners have to read before they are asked to stop and think about something?
5) If questions are designed throughout the instruction, are they evenly paced?
6) Are there are variety of questions? Or are the questions asking readers to do the same kinds of things all the time?
7) Do the questions require answers from the materials being used?
8) Do the questions require answers from related materials?
9) Do I provide good instruction on how and where to answer questions?

When designing educational materials, think about using questions in the beginning, the middle and at the end of a segment of instruction. Each part of the text is appropriate for different types of questions for different purposes:

1) At the beginning of a segment of instruction, consider:
    - using pre-test questions that evaluate the readers' previous knowledge of the subject
    - phrasing learning objectives as questions, or
    - using exploratory questions that readers can't answer yet, but they will be able to at the end of the instruction.
2) in the middle of a segment of instruction you may choose to:
    - use "stop and think" questions and make sure they are evenly paced throughout the instruction.
3) At the end of a segment of instruction, think about using:
    - review or self-help questions that review what should have been learned, or
    - post-test questions that are similar to pre-test questions so that a comparison can be made with how learners have improved after the instruction.

Practice Activities

1) Review educational materials you have designed and developed in the past. Did you use questions throughout your materials? Where did you use questions? What kinds of questions did you work into your design?

2) Review educational materials you are currently working on. Can titles or headings be turned into questions? Can questions be inserted at the end of units or small segments of instruction? Are there places to insert questions throughout the instruction? Use the guidelines and suggestions above to help you.

Part Five

Putting It All Together

Thus far we have been talking about various design strategies you can use to make your educational materials more effective. If your instruction is well designed, your readers are most likely to learn what it is you intended for them to know. Part Five discusses where to use these strategies in the beginning, middle or end of your educational materials.

Design strategies can help you design and develop better instructional materials, which make for more effective learning

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Chapter 12
Using Design Strategies

Chapter objectives

At the conclusion of this section, you will be able to:

1) group design strategies into things to do at the beginning, middle and end of instruction.
2) Select the best location in the text for their use.

What to do at the beginning, middle and end of instruction

In the eleven previous chapters we have discussed and practised instructional design theory using ten major design strategies. These strategies can help you design and develop better educational materials. Better or more effective materials promote successful and enjoyable learning experiences. However, this does not mean that you should use all of the strategies in all of your designs. As we said earlier, the key is not in the strategies, but in how and where *you* decide to use them. Your decision to use or not use a strategy will depend on the subject area and types of learners you are working with. There can be several approaches to any one design.

The key is how and where you use design strategies

In designing educational materials, it may be helpful for you to think of these strategies as things you do at the *beginning, middle,* and *end* of instruction. On the following page, Table 1 groups the various strategies according to where in the instruction you would use them. Use this checklist as a guide when designing your materials.

Beginning strategies

Design strategies, to use at the *beginning* of a segment of instruction, prepare the learners for what is to come. They give guidance on how and what to learn from the upcoming instruction. Two strategies that do just this are learning objectives and advance organizers. Learning objectives tell the readers what to expect. This helps them to assume an approach that will attain these expectations. Similarly, advance organizers guide the readers to think in a particular framework. This helps them to be more receptive to understanding the material.

Middle strategies

Strategies in the *middle* of a segment of instruction help readers to *direct themselves through the materials and scan and select information.* Ultimately they are using the information to learn what it is you intend for them to know and do. Remember, they are learning on their own. You are not there to tell them what to do. Therefore, you need to tell them clearly what is important to learn and what to do to learn it. Design strategies that help to do this are signals, margin call-outs, examples and inserted questions. For instance, verbal signals can direct learners to the ordering of a procedure or emphasize main ideas that should not be missed. Examples can help them understand the boundaries of new ideas.

End strategies

At the *end* of a segment of instruction, strategies are useful in bringing the learning together in such a way that it can be remembered and used later. Such strategies to use at the end of instruction include summaries, practice activities and feedback. Summaries review the most important points. Practice activities provide learners with an opportunity to apply what they are learning by getting them involved with the material. Feedback on such practice activities allows them to monitor and improve their learning.

Major guidelines

When designing your materials, guide yourself by asking these questions:

1) What can I do to help focus the learners' attention?
2) What can I do to help organize the instruction to promote learning?
3) What can I do to help facilitate integration to promote learning?

Follow these questions by asking yourself:

4) What strategies can I use at the beginning of the instruction to get learners ready for what is coming?
5) What strategies can I use in the middle of the instruction to tell them what is important to learn and what to do to learn it?
6) What strategies can I use at the end of the instruction that can bring the learning together in such a way that it can be remembered and used at a later point in time?

Table 1

Design Strategies

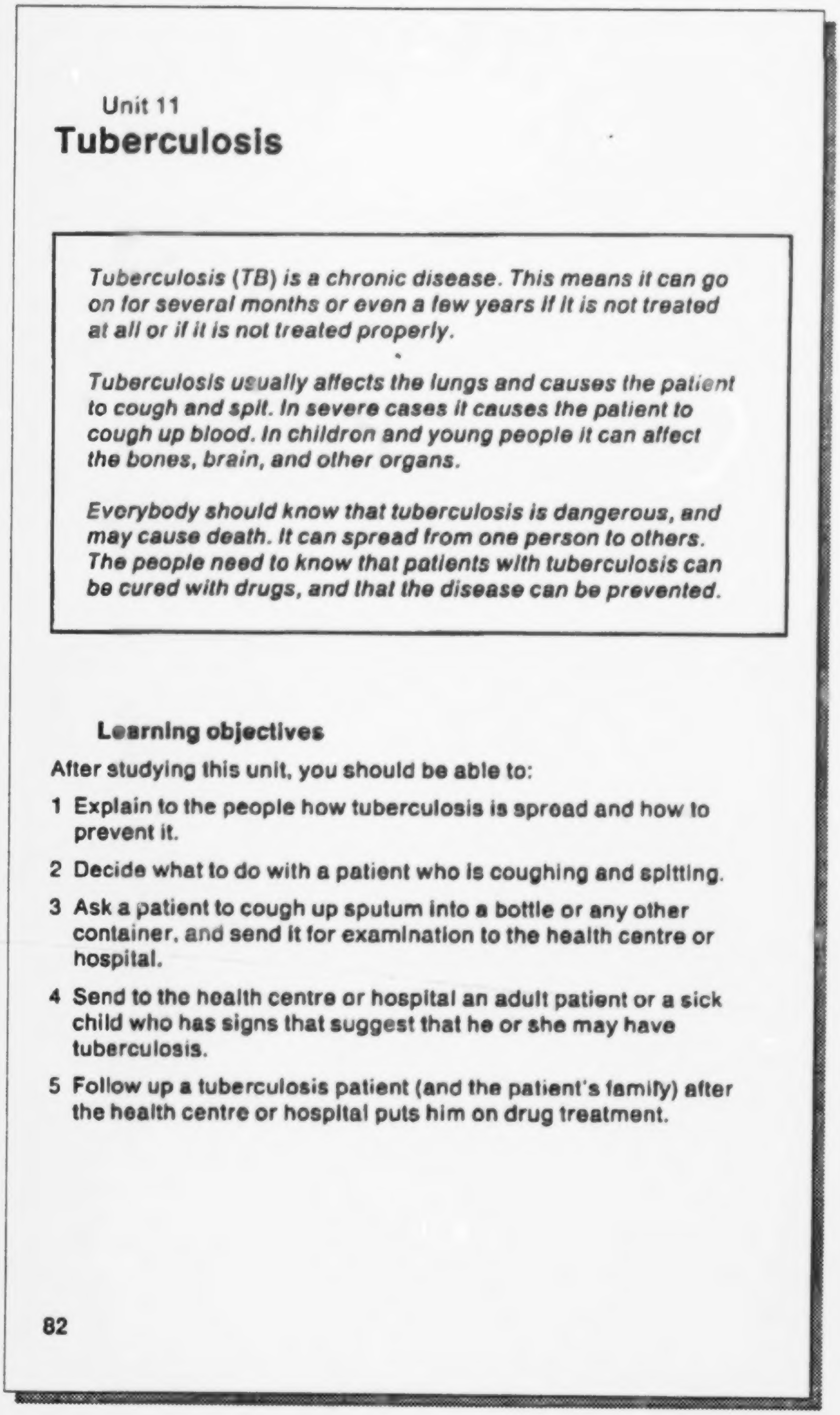
Beginning	☐ learning objectives
	☐ advance organizers
Middle	☐ margin call-outs
	☐ visual signals
	☐ verbal signals
	☐ model examples
	☐ related examples
	☐ inserted questions
End	☐ summaries
	☐ practice activities
	☐ feedback

Be creative!

Remember, there is really no right or wrong way, but rather what is most appropriate for what you are trying to put across through the materials you design. What do you want your learners to know and do? Who are your learners? What strategies are most useful for attaining your goals? You are the key to using design strategies successfully. This manual is just a basic discussion, but don't let that limit you. Think of different ways to use what is presented here. Be creative!

On the following six pages is one example of a unit of learning that uses some of the strategies we have discussed. It is a unit designed for Community Health Workers on tuberculosis. Review the unit and identify the strategies that are used on each page. As you read Example 1, ask yourself what aspects of the instruction you like the most and least. Are there any parts you would have done differently?

Example 1:
First page



Unit 11

Tuberculosis

Tuberculosis (TB) is a chronic disease. This means it can go on for several months or even a few years if it is not treated at all or if it is not treated properly.

Tuberculosis usually affects the lungs and causes the patient to cough and spit. In severe cases it causes the patient to cough up blood. In children and young people it can affect the bones, brain, and other organs.

Everybody should know that tuberculosis is dangerous, and may cause death. It can spread from one person to others. The people need to know that patients with tuberculosis can be cured with drugs, and that the disease can be prevented.

Learning objectives

After studying this unit, you should be able to:

1. Explain to the people how tuberculosis is spread and how to prevent it.
2. Decide what to do with a patient who is coughing and spitting.
3. Ask a patient to cough up sputum into a bottle or any other container, and send it for examination to the health centre or hospital.
4. Send to the health centre or hospital an adult patient or a sick child who has signs that suggest that he or she may have tuberculosis.
5. Follow up a tuberculosis patient (and the patient's family) after the health centre or hospital puts him on drug treatment.

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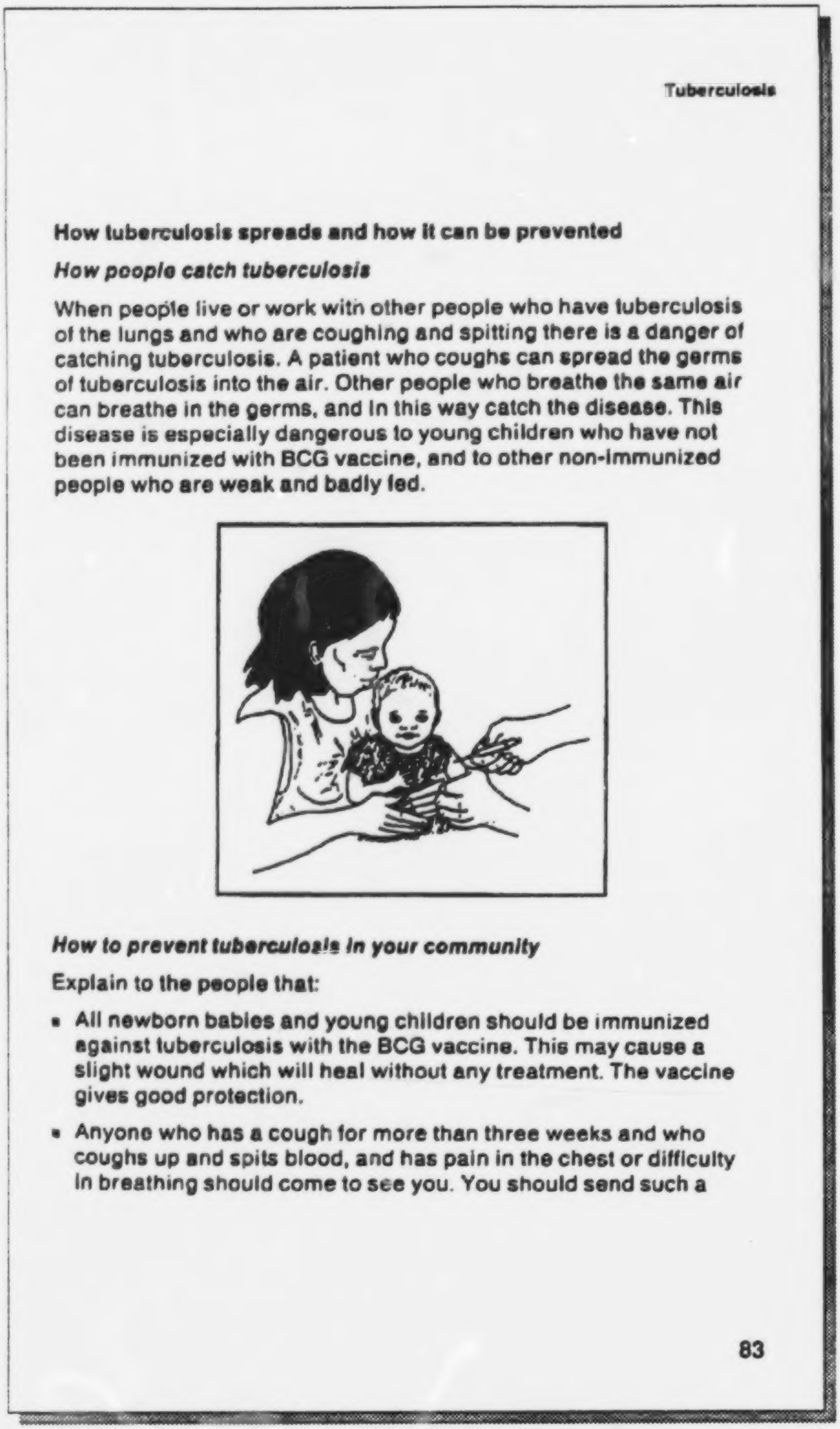
Second page



Tuberculosis

How tuberculosis spreads and how it can be prevented

How people catch tuberculosis

When people live or work with other people who have tuberculosis of the lungs and who are coughing and spitting there is a danger of catching tuberculosis. A patient who coughs can spread the germs of tuberculosis into the air. Other people who breathe the same air can breathe in the germs, and in this way catch the disease. This disease is especially dangerous to young children who have not been immunized with BCG vaccine, and to other non-immunized people who are weak and badly fed.

How to prevent tuberculosis in your community

Explain to the people that:

- All newborn babies and young children should be immunized against tuberculosis with the BCG vaccine. This may cause a slight wound which will heal without any treatment. The vaccine gives good protection.
- Anyone who has a cough for more than three weeks and who coughs up and spits blood, and has pain in the chest or difficulty in breathing should come to see you. You should send such a

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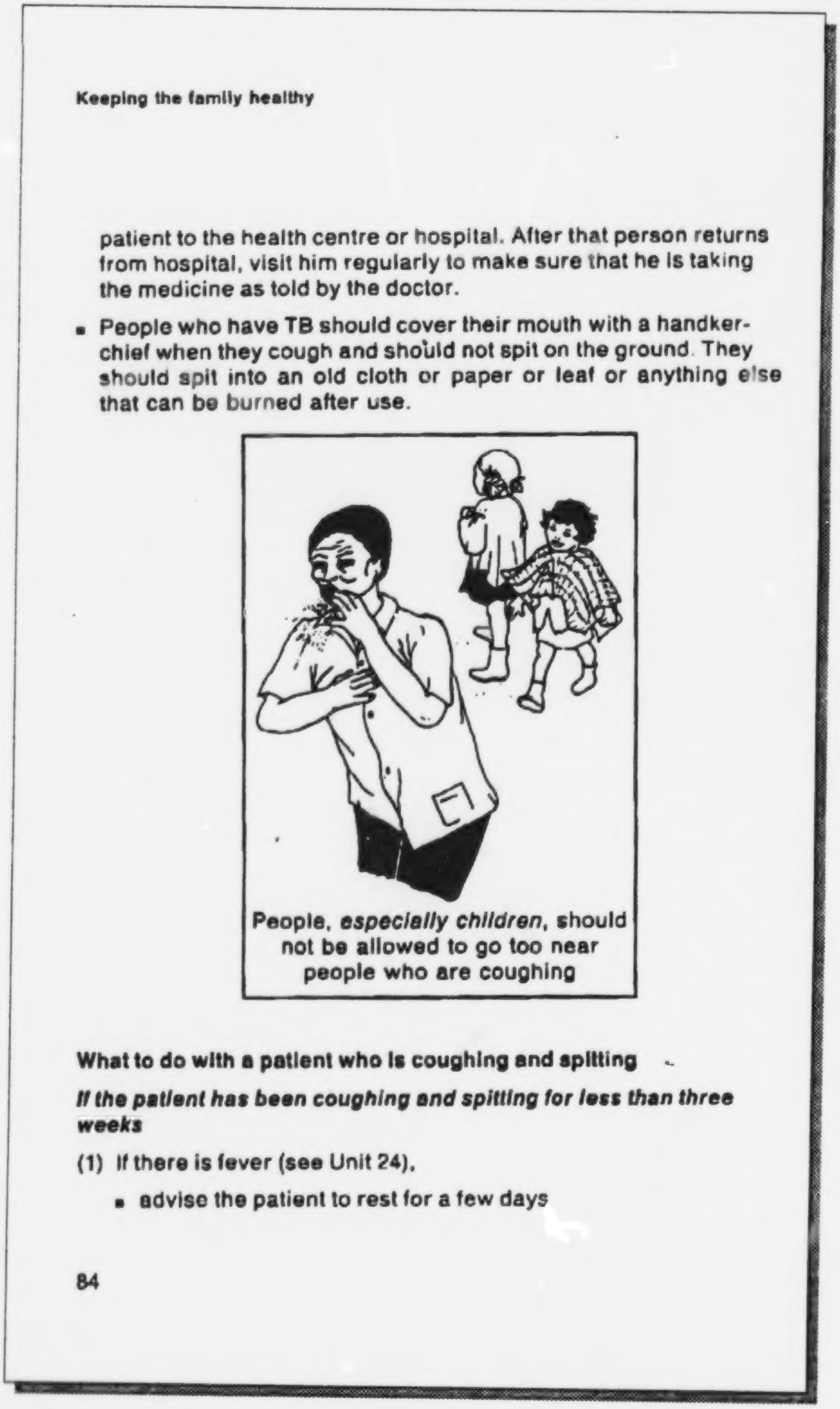
Third page



Keeping the family healthy

patient to the health centre or hospital. After that person returns from hospital, visit him regularly to make sure that he is taking the medicine as told by the doctor.

- People who have TB should cover their mouth with a handkerchief when they cough and should not spit on the ground. They should spit into an old cloth or paper or leaf or anything else that can be burned after use.

People, *especially children*, should not be allowed to go too near people who are coughing

What to do with a patient who is coughing and spitting

If the patient has been coughing and spitting for less than three weeks

(1) If there is fever (see Unit 24),

  - advise the patient to rest for a few days

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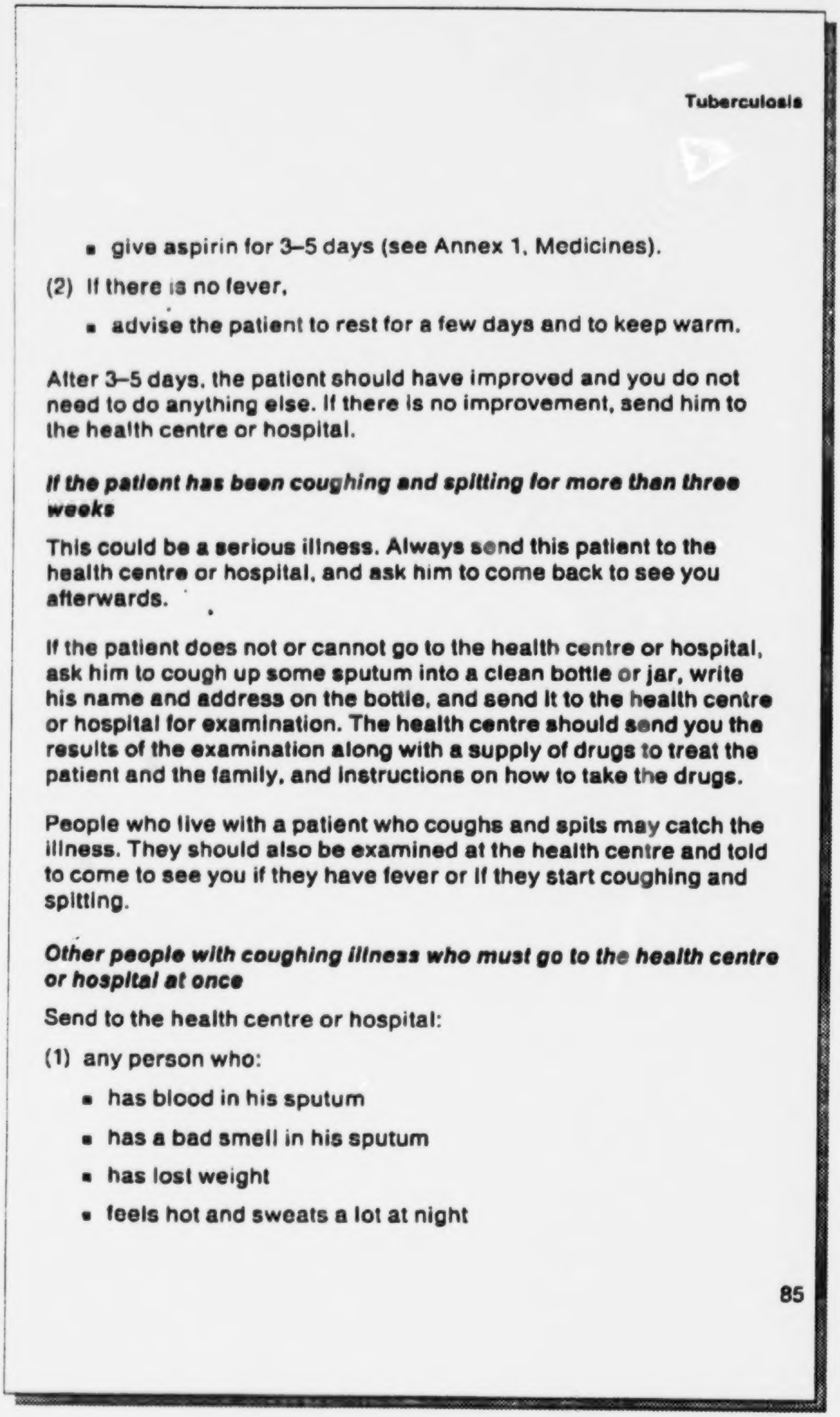

Tuberculosis

- give aspirin for 3–5 days (see Annex 1, Medicines).

(2) If there is no fever,

- advise the patient to rest for a few days and to keep warm.

After 3–5 days, the patient should have improved and you do not need to do anything else. If there is no improvement, send him to the health centre or hospital.

If the patient has been coughing and spitting for more than three weeks

This could be a serious illness. Always send this patient to the health centre or hospital, and ask him to come back to see you afterwards.

If the patient does not or cannot go to the health centre or hospital, ask him to cough up some sputum into a clean bottle or jar, write his name and address on the bottle, and send it to the health centre or hospital for examination. The health centre should send you the results of the examination along with a supply of drugs to treat the patient and the family, and instructions on how to take the drugs.

People who live with a patient who coughs and spits may catch the illness. They should also be examined at the health centre and told to come to see you if they have fever or if they start coughing and spitting.

Other people with coughing illness who must go to the health centre or hospital at once

Send to the health centre or hospital:

(1) any person who:

- has blood in his sputum
- has a bad smell in his sputum
- has lost weight
- feels hot and sweats a lot at night

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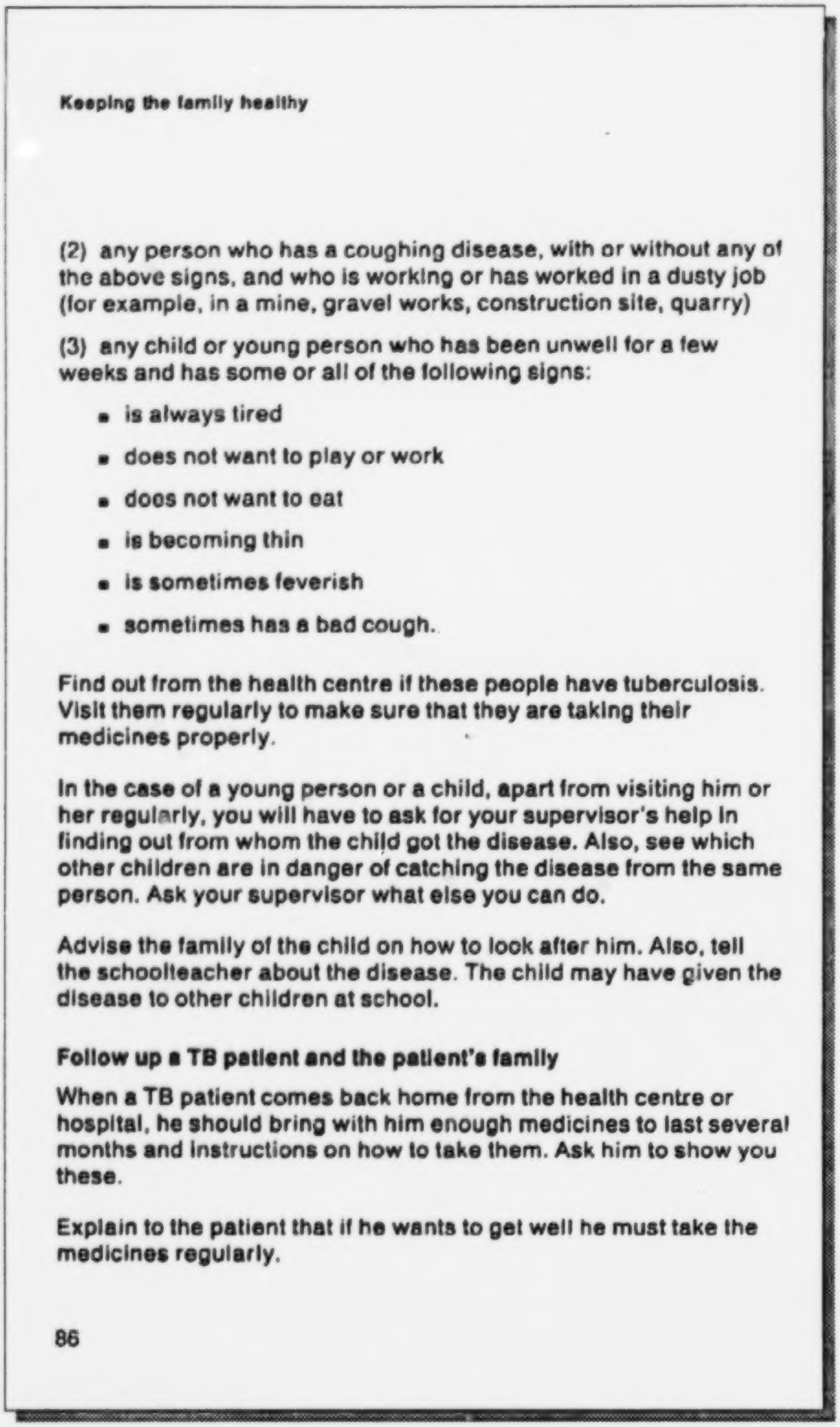
Fourth page

Fifth page



(2) any person who has a coughing disease, with or without any of the above signs, and who is working or has worked in a dusty job (for example, in a mine, gravel works, construction site, quarry)

(3) any child or young person who has been unwell for a few weeks and has some or all of the following signs:

- is always tired
- does not want to play or work
- does not want to eat
- is becoming thin
- is sometimes feverish
- sometimes has a bad cough.

Find out from the health centre if these people have tuberculosis. Visit them regularly to make sure that they are taking their medicines properly.

In the case of a young person or a child, apart from visiting him or her regularly, you will have to ask for your supervisor's help in finding out from whom the child got the disease. Also, see which other children are in danger of catching the disease from the same person. Ask your supervisor what else you can do.

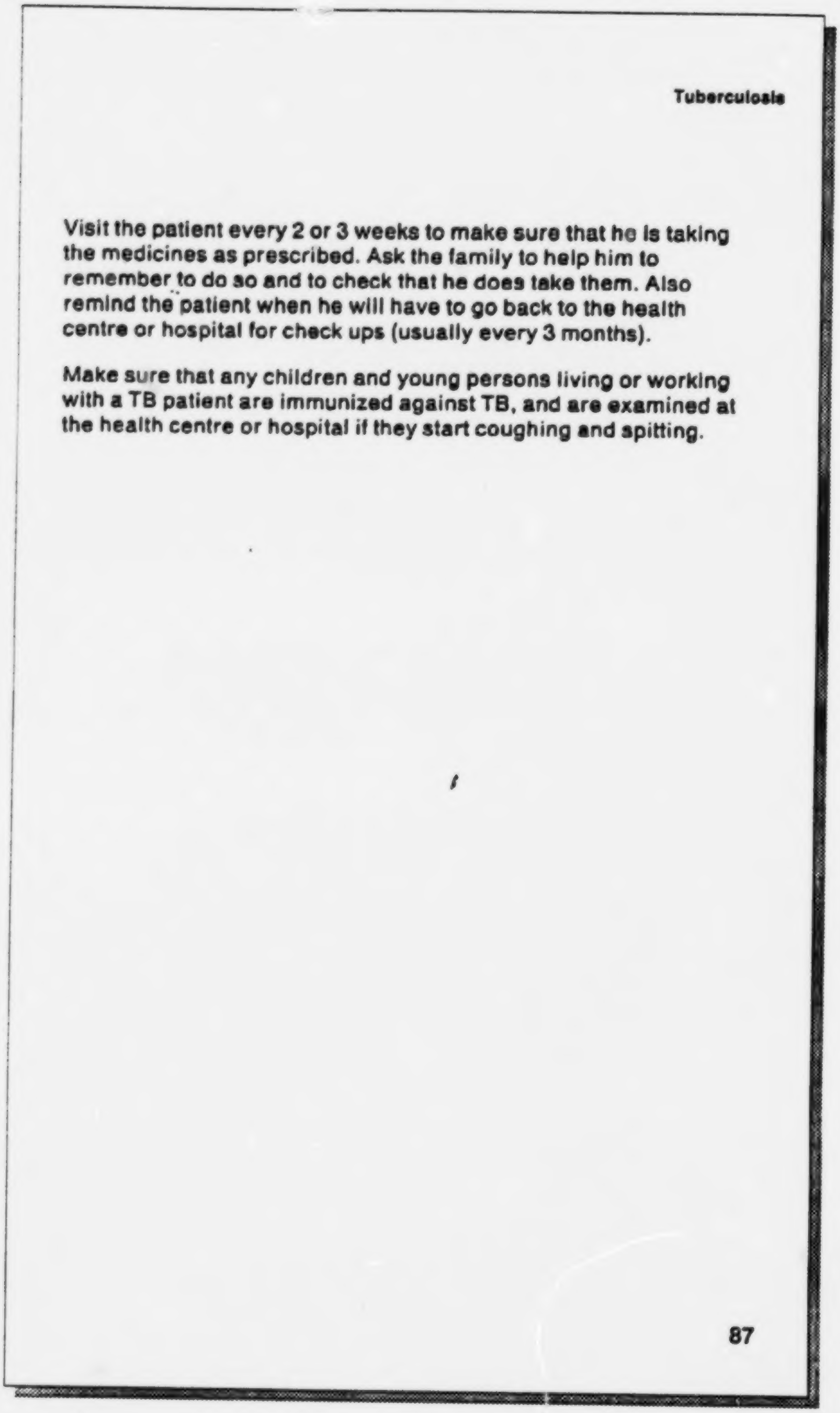
Advise the family of the child on how to look after him. Also, tell the schoolteacher about the disease. The child may have given the disease to other children at school.

Follow up a TB patient and the patient's family

When a TB patient comes back home from the health centre or hospital, he should bring with him enough medicines to last several months and instructions on how to take them. Ask him to show you these.

Explain to the patient that if he wants to get well he must take the medicines regularly.

Sixth page



Visit the patient every 2 or 3 weeks to make sure that he is taking the medicines as prescribed. Ask the family to help him to remember to do so and to check that he does take them. Also remind the patient when he will have to go back to the health centre or hospital for check ups (usually every 3 months).

Make sure that any children and young persons living or working with a TB patient are immunized against TB, and are examined at the health centre or hospital if they start coughing and spitting.

First page:
Introduction
Box

As you read over the previous six pages of the tuberculosis unit, you should have noticed that it contains several design strategies. First, the lesson begins with an introduction to the disease tuberculosis. The introduction presents only new information to the student in three brief paragraphs. If the introduction had also reviewed previous information the student had already known, it would have been more like an advance organizer. To focus attention on to the introduction a box is used.

Learning Objectives
Numbering
Bold highlighting
Spacing titles

Five learning objectives follow the introduction. Numbering is helpful in signalling where one objective begins and the other ends. Also on this first page, notice the use of bold print of titles. The main title at the top of the page is about twice the size of the sub-title found in the middle of the page. Usually unit and chapter titles are larger than other titles appearing within each of these sections.

Consistent spacing
Spacing to group ideas

What can you say about the spacing on this page? The consistent spacing between the paragraphs in the introduction and learning objectives is enough to separate and group ideas. In addition, the spaces create "breaks" where the learners can stop in their reading. There is a larger space between the main title and introduction and again between the introduction and learning objectives. This helps to separate the page clearly into three distinct areas. Looking at your notes, is there anything else you noticed?

Second page:
Bold highlighting
Bullets
Box
Consistent spacing

Moving onto the second page of the tuberculosis unit, what did you find? Here, three titles appear in bold print to mark different ideas on the page. Also, square-type bullets are used to draw attention to two main ideas at the bottom of the page. A box frames an illustration of a child being immunized which directly relates to what is said in the paragraph above it. The paragraphs are short in length and are made up of many short, easy-to-read sentences. Notice again the spacing. Spacing is consistent and helpful in grouping information. Did you note anything else here?

Third page:
Bullets
Box
Italic highlighting
Bold highlighting

On the third page, there are again square-type bullets that highlight two ideas. A *box* is placed around a second picture which illustrates a point made in the paragraph directly above it. Notice the use of italic print within the box to emphasize a caution about children. Titles continue to appear in bold print to distinguish various areas.

Fourth page:
Bullets
Indented spacing
Bold highlighting
Consistent spacing

The fourth page employs bullets to focus attention to six ideas. They highlight a list of briefly stated recommendations and symptoms. In contrast, notice how the bullets on the previous two pages are placed next to short paragraphs. Also, these bullets are indented whereas those on page two were on a level with the margin. Bold printed titles, short paragraphs, and consistent spacing are similar to what we said about the first three pages. Are there any other observations you can add here?

Fifth page:
Bullets
Numbering
Spacing to group ideas

What do you see on the fifth page? Bullets highlight a list of six symptoms near the top of the page. Above this, numbering is used to point out when to send someone to a hospital. The paragraphs are brief with spacing between each to mark one from another. As you scan the page, you should readily see eight distinct areas on this page created by such spacing. What else did you notice?

Sixth page:
Spacing to group ideas
Short sentences
Brief paragraphs

Lastly, the sixth page concludes with two short paragraphs. What can you say about the entire unit? What seems most striking in this unit is the consistent use of spacing to group and separate information. It makes learning easier. Scanning and selecting information is easier. Secondly, the author used short, direct sentences. Sentences that are concrete and to the point. These sentences are then grouped into brief paragraphs that convey only one or two ideas at a time. This also makes learning easier.

The design is simple, yet effective. Notice that the unit did not use all the design strategies in one lesson. This particular unit used only some of the design strategies we discussed in this manual. Does the design allow you to scan and select information readily? Does the design allow you to learn more successfully and enjoyably? How would you react to this unit if you were a Community Health Worker who had to learn about tuberculosis?

Practice Activities

1) Review educational materials you have designed in the past. What design strategies did you use on each page? Use the checklist (Table 1) at the beginning of this chapter as a guide. After reading this manual, would your design look different? If yes, what kind of changes would you make?

Glossary

Action word A word or verb that implies doing something that one can directly observe.

Advance organizer One or two paragraph(s) that concisely present the main ideas and relate what the learners already know to the new ideas in the upcoming instruction.

Box A type of visual signal that serves to draw attention to words or phrases. It is like a picture frame.

Bullet A type of visual signal that serves to draw attention to main ideas, steps in a procedure, and other things that can be listed or grouped in some way. It looks like a large full stop found at the end of sentences or a small square box.

Design strategies Techniques based on how readers learn that promote more successful and enjoyable learning experiences.

Feedback Helpful comments that are given to learners after their performance on something. It constructively points out what was both good and weak in the performance so that they can check and monitor their progress.

Focus To draw the learners' attention to what it is you want them to learn. If the reader is not attentive to something, learning cannot take place.

Highlighting A type of visual signal such as underlining or bold printing that serves to draw attention to a word or phrase.

Inserted questions Questions placed throughout educational materials which oblige learners to think more deeply about the information.

Instructional design The preparation of educational materials with a purpose in mind and making that purpose clear to learners as to what and how to learn. This improves the chances of learning taking place.

Integration The more involvement learners have with information, the longer it stays in their memory. Through such involvement they can remember something learned today at a later date. This third stage of learning is critical if learning is to be effective.

Learning objective A brief action statement that describes what learners will be able to know and do at the end of the instruction.

Margin call-out Important words, titles, and /or brief definitions that are found at the sides of written instruction. They are like notes in the right or left margins of a page.

Model example A clear, obvious case that illustrates the key features of an idea you are trying to convey.

Organize To arrange ideas into a logical pattern that makes learning easier and enjoyable for learners. This improves the chances that they will learn what needs to be learned.

Practice Activities or exercises that give learners a chance to use or apply what is taught in order to help to integrate their learning.

Related example A case that is not an obvious example of an idea that is being conveyed, but has some of the key features which help to fine tune the learners' understanding.

Shading A type of visual signal that serves to draw attention to information, such as shadowed, hatched or coloured boxes, or using different coloured pages.

Spacing A type of visual signal that serves to draw attention to information and allows the readers to scan information easier.

Stages of learning Experts say to have meaningful learning one must be attentive to, understand, and remember the information.

Summary A brief statement that highlights the most important ideas stated in a piece of instruction.

Vague word A word that can have many meanings and implies doing something that cannot be easily observed.

Verbal signal A word or phrase that directs the learners to what is important and in what order to learn it.

Visual signal An attention-drawing device, such as a box around several important sentences or a line under a key word that focusses the learners' attention on what is important.

Reading Sources

The following is a list of sources you may consult for additional information on the various areas presented here. These references were selected because the language style is easy to read and understand.

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